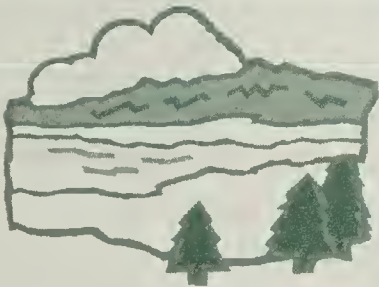




A publication of the VIRGINIA NATIVE PLANT SOCIETY
Conserving wild flowers and wild places

www.vnps.org



"Our Mountain Roots" in Shenandoah National Park Annual Meeting 2010

VNPS members are invited to gather September 10-12 in Shenandoah National Park for the Annual Meeting 2010, hosted by the Piedmont Chapter. In keeping with the meeting's theme, "Our Mountain Roots," activities will highlight the park's cultural history as well as its plant communities. A variety of hikes will showcase varied ecosystems with their native plants, many still in bloom or fruit. Be ready for the challenge of sorting out asters and golden-rods, or spotting more elusive plants such as doll's eyes (*Actaea pachypoda*) or ladies' tresses (*Spiranthes spp.*). The Friday-night speaker, park botanist Wendy Cass, will describe efforts to preserve the park's botanical treasures. Accommodations are reserved at Skyland Resort. Members are encouraged to monitor the *Bulletin* and the website as more information and registration details become available.

Don't judge a book by its cover *The curious case of wild ginger pollination*

What pollinates wild ginger? This seems like an easy question. The inconspicuous little flowers are held close to the forest floor, often completely hidden by a dense canopy of ginger leaves above. Flower color is rather drab, dominated by brown and maroon hues. Wind pollination seems completely unlikely and flowers pollinated by bees, butterflies, moths, or hummingbirds are always much more showy and accessible to these flying creatures. Flies, however, given their natural inclination to seek carrion as a food source for their babies (i.e. maggots), are often attracted to brown and maroon flowers. And because their actual quarry, animal carcasses, would be located on the ground, visiting a wild ginger flower could easily be perceived to be consistent with routine fly behavior. It seems obvious: wild ginger flowers sure look like they ought to be cross-pollinated by flies of some sort.

In fact, I remember being taught long ago that fungus gnats, a sort of fly, pollinate wild ginger, and, I am embarrassed to admit that I have passed along that half truth (really, less than half true) to more than one class of students. The general idea of fly-based pollination for wild ginger was widely repeated in floras and accounts of natural history prior to 1940, and a study of wild gingers and fungus gnats was published somewhat later (Vogel, 1978). These alleged gnat and fly pollinator theories have dispersed widely and now can be found infesting the Internet. It is not difficult to locate on the Web multiple iterations of and variations upon the wild ginger-fly/gnat story. Sometimes the story is embellished with wonderfully elaborate details: flies newly emerged in early spring allegedly encounter wild ginger flowers while searching for the thawing bodies of small mammals that failed to survive the preceding harsh winter. Often the story is told with the imprimatur

(See *Wild Ginger sex*, page 6)

Wild Ginger
Asarum canadense
Illustration by
Nicky Staunton



INSERT: VNPS 2010 Wildflower of the Year, Wild Ginger



From the president

Winter plant clues bring warm thoughts

While there's still snow cover here in mid-January, I've been spending a little more time inside. Oh the things you find!

with the day, and while away a cold morning thinking warm thoughts. A book I like for looking up off-season finds is *Wildflowers in Winter*, by Carol Levine, although there are other good ones.

Yesterday it was a collection of plant parts, pretty dried up. What ARE these? Where did they come from? I really wasn't sure, but sat looking closely at them until it started to come back to me. A bit of the flowering part of skunk cabbage looking like something from another planet. A stem of flowers from a box elder, I think. The calyx of a stachys flower, purple on the tips and still stuffed with hairs. Some grass, no less a mystery now than when I first picked it! While we should all heed the rule of not picking on publicly owned lands and gardens, I sometimes come in with a handful of things from yard or roadside and have a closer look. Not only are the pieces interesting in themselves, and amazing because they keep some rather delicate looking parts, but you can shut your eyes and remember the feel of the air, or the smells associated

There is plenty to look forward to in the coming spring, including another stimulating lineup of speakers at our Annual Workshop on March 6, the second official Invasive Removal Day on May 1 that we cosponsor with the Virginia Master Naturalists, and another week-long trip to Southwest Virginia beginning May 9. Please look for more information on the trip elsewhere in this newsletter, or contact the office for details.

I want to wish a warm welcome to new members, particularly those of you who received gift memberships last year. Thanks also to the members who gave those gifts. I hope you will like what we offer, both on the state level and in your chapter, and continue your association with us.

Your President, Sally Anderson

Join VNPS for a Southwest Va. botany-natural history foray

Set aside the week of May 9-14 for a trip of exploring and botanizing. This year's trip will include stops at Mount Rogers for a visit to the boreal forest of Virginia and a walk among the wildflowers. Doug Ogle has agreed to lead us on a trip to the ponds of Saltville. It is an area of much history, unique plant growth (can you believe saltwater plants?) and geologic wonder.

We will visit the Clinch Mountain Wildlife Management Area to see spectacular displays of larkspur and trillium as well as blue-eyed Mary (*Collinsia verna*). This area climbs 1,600 feet above the valley to offer beautiful views as well as a diversity of flora.

A drive through Burkes Garden in Tazewell County is always a treat. It is one of the most scenic areas in the Old Dominion. This is the highest valley in Virginia at 3,000 feet. For the birders this area offers waterfowl in the ponds and is home to the golden eagle. A drive through this area is as rural as it gets. The pastoral setting with the mountains looming above is spectacular.

Breaks Interstate Park is located in

Dickinson County and spills over into Kentucky. This is the deepest canyon east of the Mississippi. The 4,500 acres of this park offer a wide variety of plant life including catawba rhododendron (*Rhododendron catawbiense*). The Russell Fork River offers fishing and whitewater rafting. We will spend the night in the lodge there and join a park ranger for a close-up look at a true Virginia treasure.

The drive between Breaks Interstate Park and Natural Tunnel State Park is quite scenic and includes a stop at Birch Knob where on a clear day six states can be seen from the tower. Once

we arrive at Natural Tunnel we will see an incredible variety of plants. This was one of the highlights of the 2009 trip. If you are interested in geology, there are fossils found in the limestone rocks here. Natural Tunnels was dubbed the eighth wonder of the world by William Jennings Bryan.

More information is coming soon. Trip cost is \$600 and includes lodging, guides, a \$100 VNPS donation, and most breakfasts. Trip limit is 16. To reserve space, send a \$100 deposit to the VNPS office. To learn more, contact Butch Kelly (butch2410@msn.com or 540-384-7429).

Globally rare ecosystem threatened by marina

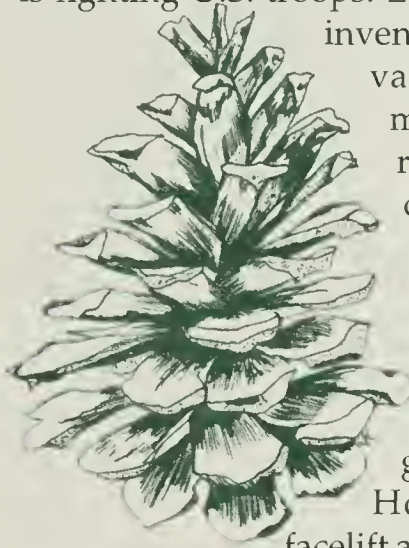
Tucked in the far southeastern corner of Virginia, the Back Bay National Wildlife Refuge and its namesake, Back Bay, harbor a rich array of aquatic life and vibrant bird populations and draw anglers and birders year round. The shallow bay, averaging just four feet in depth, is ruled by the wind rather than lunar tides, making it a globally rare ecosystem. The bay has been designated an Aquatic Resource of National Importance by federal agencies, but that doesn't automatically protect it from harm.

In 2005, a Virginia Beach developer applied for a permit from the Army Corps of Engineers to build a 76-slip commercial marina in the bay just north of the wildlife refuge. The project would result in a significant increase in motorboat

(See *Back Bay*, page 8)

Bird bellies provide plant link

What do the following have in common? The Statue of Liberty arrives in New York Harbor. A patent is filed for the first roller coaster. Grover Cleveland becomes president of the United States. The Apache warrior, Geronimo, is fighting U.S. troops. Louis Pasteur



invents the rabies vaccine. A 19-mile-long railroad track connecting Norfolk to Virginia Beach is two years old. The Virginia Beach Hotel gets a

facelift and will soon reopen as the Princess Anne Hotel. The answer lies in the 19th century — the year 1885.

The Virginia landscape in 1885 was, in many places, a shadow of its former self. The long leaf pine had been logged to near extinction. Forests that greeted the early colonists had been cleared for homes, crops and pastures. Marshes and swamps had been drained to increase acreage for agriculture. George Washington had made a failed attempt a century earlier to wrestle land from the Great Dismal Swamp. Watershed quality had declined as soil erosion from farmlands clouded streams, rivers and bays.

All the while, wildlife was pushed from its native homes and forced to find new food and cover. Flocks of wild turkey moved out as jays, crows and starlings moved in. Cultivated crops of corn, oats, barley and wheat proved a boon for wildlife. Cleared forests created edges where grass, perennials and

shrubs could grow and provide wildlife with seeds, fruit, insects and cover. The ivory-billed woodpecker and the passenger pigeon became extinct while other wildlife flourished and adapted to the ways of mankind.

The ability of wildlife to adjust and adapt to altered landscapes and introduced foodstuffs had long been of interest to field naturalists. The famous author of *Birds of America* (1827-1838), John James Audubon, shot the birds he posed and painted. He studied their stomach contents and noted foods eaten as "wild fruits and grains," "weed seeds" or "insect and plant materials." With scalpel, tweezers, pencil and journal in hand, Audubon became an early practitioner of studying bird food habits in a laboratory.

The traditional study of wildlife and food habits occurs in the field. The field naturalist needs a keen eye, patience and excellent recordkeeping skills. Henry David Thoreau is an early example. Weary after writing *Walden*, Thoreau embarked on a labor of love as he began to observe and record the goings-on of the native plants and wildlife near his home in Concord, Massachusetts. Thoreau writes of American chestnuts in the fall of 1850 that "the chestnuts are rattling out. The jays scream and the red squirrels scold while you are clubbing and shaking the trees." He found 35 chestnuts a mouse had stored in the rodent's gallery. Thoreau noted the fall chestnut harvest of 1852 "was more than the squirrels could consume."

Would that we could know what Thoreau did. The queen of the eastern forests fell victim to chestnut blight in 1904. The American chestnut was all but a memory by 1950. Thanks to Thoreau and his writings in *Wild*



Fruits, we can wonder what it's like when "the chestnuts are rattling out."

In 1885 the study of wildlife and their food habits became a mandate of the U.S. Department of Agriculture. Early research focused on wildlife food habits that could harm farmers' fields. It evolved to include the study of waterfowl, upland game birds, fur and game animals and other species. Fish and Wildlife Service record #1 was of a song sparrow shot in a marsh near Ossining, N.Y. at 6 p.m. on July 3, 1885. Its stomach contents were studied and recorded as 20 percent animal matter and 80 percent vegetable matter. Decades later, more than 250,000 records existed for birds plus thousands of records on mammals, reptiles and amphibians.

This vast reserve of federal food-habits data plus that gathered by state conservation and fish and game departments across decades is the backbone of a unique book titled *American Wildlife & Plants: A guide to Wildlife Food Habits*. This book was published in 1951 under the direction of the U.S. Fish and Wildlife Service, Department of the Interior, at the Patuxent Research Refuge, Laurel, Maryland. The authors who took on the challenging task of organizing, interpreting and publishing this data were biologist Alexander C. Martin, consultant Herbert S. Zim and Arnold L. Nelson, director of the Patuxent Research Refuge.

This book answers questions such as "What foods does the common goldfinch eat?" and "What foods do goldfinches prefer to eat?" The answer is that ragweed year-round is 10-25 percent of the goldfinch diet; thistle and sweet gum are 10-25 percent of its wintertime diet and shepherds-purse is 10-25 percent of its summertime diet. Goosefoot, sunflower, dandelion, velvet grass and alder are

(See *Bird study*, page 7)



Greenbrier (left)
Illustration by Nicky Staunton
Dogwood (right)
Illustration by Barbara Stewart



Flora of Virginia

A peek inside the pages . . .

The manuscript of the *Flora of Virginia* goes to the copy editor next January, so this year is the home stretch! Ecological review of completed family treatments is now under way, and authors are winding up the remaining family treatments, as measurements are verified in the herbarium with specimens collected in Virginia. We're also gearing up to collect plants on our most-wanted list for illustration this year. In late 2012, we'll have the *Flora* in hand.

We wanted you to have a preview of what the *Flora* is going to look like inside, so here (opposite) is a complete family treatment that will serve as a model 7 x10-inch page. We picked a family — the Annonaceae — with only two representatives in the state, which lets us present a whole family treatment on one page. This treatment is not final, and there will probably be a few tweaks to the format.

Let's have a look. A family treatment will begin with the prominent display of the **family** name, its authority, and its common name. This is followed by the family description (**D**) and the references (**R**) used in the family's taxonomy and description. The taxa within a family will be presented genus by genus, alphabetically. For families with more than one genus in Virginia, there will be a **dichotomous key to the genera**, but for the Annonaceae, we have only one genus, *Asimina*. A **genus** name is also presented prominently, with its authority and common name. The genus is then described (**D**) and references (**R**) given.

Next comes the **dichotomous key to the species** in the genus; in Virginia, there are two species in *Asimina*. The key is followed by a full description of each species, presented in alphabetical order. A **species description** in-

cludes authority, common names, and synonymy, keyed to references, which are coded to save space (for example, C = *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, by Henry A. Gleason and Arthur Cronquist; F = *Gray's Manual of Botany*, by Merritt Lyndon Fernald; FNA = *Flora of North America*; and RAB = *The Manual of the Vascular Flora of the Carolinas*, by Albert E. Radford, Harry E. Ahles and C. Ritchie Bell). Then come the morphological description of the species (**D**), phenology information (**P**), habitat information (**H**), status (**S**), and any comments about the species (**C**).

More than 3,500 taxa will be keyed and described in the *Flora of Virginia*, and 1,400 taxa will be illustrated with drawings commissioned especially for this book. *The Flora* will be a hefty 1,400 pages long and will include a history of botanical exploration in Virginia, a discussion of the plant communities in the commonwealth, and a glossary.

This is an exciting time, made even more so by the terrific support we have received from the Virginia Native Plant Society, its chapters, and, individually, its members. While our fundraising lagged a bit last year compared with 2008, we did better than we had anticipated, given the recession. This serves as our springboard for raising the \$250,000 we need to make the Flora Project succeed. You can find information about the Flora Project and our sponsorship programs on our website, floraofvirginia.org, or call me at 804-371-5561. Once again, VNPS has designated the Flora Project as the recipient of its annual giving campaign. An appeal letter should arrive in your mailbox soon. Bland Crowder, associate director and editor, *Flora of Virginia* Project

Flower Camp to offer Nature Journaling Workshop

Seeing nature in a new light will be the focus of the Nature Journaling Workshop to be held April 30 to May 2 at Nancy Ross Hugo's Flower Camp in Howardsville. Participants will learn to observe and record natural phenomena in new ways with artist Rhonda Roebuck, who returns to the Flower Camp setting overlooking the James River to lead her fifth workshop there. As always, Rhonda will not only share what she has learned from her own lifetime of journaling but also coach campers in new and interesting ways to record what they see. Rhonda will demonstrate interesting ways to alter digital images, play with paint, and experiment with drawing (even if you can't draw), but her emphasis during this workshop will be less on embellishing the journal page than on improving seeing. Rhonda's usual smorgasbord of materials will be available for campers to use, but this year participants will spend more time outdoors practicing techniques that enhance seeing rather than indoors working on journal pages. Camp director Hugo will be on hand to lead forays into the woods and gardens around Flower Camp, pointing out early spring tree traits, among other things. Tuition of \$375 includes five meals (dinner Friday through brunch Sunday), two nights' lodging, instruction, and most materials. For more information, contact Hugo at 2047 Selma Road, Howardsville, VA 24562; nancyhugo@comcast.net; or 804-798-6364.



Linden tree journal page by Rhonda Roebuck.

ANNONACEAE A.L. de Jussieu 1789 Custard-apple Family

A family of 128–130 genera and 2,200–2,300 species, mostly tropical. **D** Vines, shrubs, or trees to 15 m; buds naked; leaves alternate, entire, simple, pinnately veined, obovate, acuminate, with cuneate bases, short-petiolate, exstipulate, malodorous when crushed. Flowers perfect, regular, axillary, solitary on short pedicels, hypogynous; sepals 3, distinct or basally connate; corolla of 6 thickish petals in two whorls, purple or purplish green, valvate in the bud; stamens numerous, distinct, spirally arranged, anthers adnate, extrorse, filaments very short, connective often prolonged; pistils several to many on flat to conical or subglobose receptacle, free and distinct or cohering in a mass; ovaries superior, ovules 1–many. Fruits fleshy or pulpy aggregates of berrylike structures, sometimes coalescent, aromatic when mature; berrylike structures ellipsoid, obovoid, or torulose, usually indehiscent, stipitate; seeds 1–several, large, brown, anatropous, compressed, ellipsoid-ovoid; embryo minute, at base of ruminated endosperm. **R** Kessler in Kubitzki, Rohwer, and Bittrich (1993).

Asimina Adanson 1763 Pawpaw

A genus of 8 species endemic to e. North America. **D** Shrubs or small trees, taprooted; trunks straight in arborescent forms. Bark thin; lenticels scattered, small, prominent; buds naked. Leaves deciduous, alternate, obovate, cuneate at base, acuminate, entire, short-petiolate, exstipulate, malodorous when crushed. Inflorescences axillary fascicles on new shoots or from above leaf scars of previous seasons; peduncles bracteate or bracteolate. Flowers solitary on short pedicels, 1–4 per fascicle, nodding to nearly erect, perfect, regular. Sepals 3–4, soon deciduous, nearly distinct, triangular to deltate-ovate, valvate in bud. Petals usually 6, purple or purplish green, in 2 unequal series of mostly 3 equal members, the outer set imbricate, larger, thinner than the valvate inner set; nectaries present. Stamens numerous, short-columnar, forming ball; filaments short. Pistils 1–15, usually only 1–3 maturing, distinct, glabrate. Ovaries superior, 1- to many-ovulate; ovules several, or many in 2 staggered rows. Fruits aggregates of separate berrylike structures, fleshy, aromatic; seeds 1–many per pistil, brown, bean-shaped. **R** Kral (1960)=Z; Wilbur (1970a)=Y; Godfrey (1988)=X; Kral in FNA (1997); Ward (2001); Kessler in Kubitzki, Rohwer, and Bittrich (1993).

Flowering pedicels 3–8 mm long, the hairs tan to rusty; leaves 6–15 (–20) cm long; sepals 4–7 mm long; outer petals 10–13 mm long; fruit 1–3 (–6) cm long; plant a shrub to 2 m (rarely to 5 m) tall (Coastal Plain) *A. parviflora*

Flowering pedicels (10–) 15–20 (–25) mm long, the hairs dark reddish-brown; leaves 15–35 cm long; sepals 8–12 mm long; outer petals 15–25 mm long; fruit (3–) 7–15 cm long; plant a tree to 15 m tall (widespread) *A. triloba*

Asimina parviflora (Michaux) Dunal; Small-flowered Pawpaw, Small-fruited Pawpaw. [= C, F, FNA, G, K, RAB, S, W, WH, X, Y, Z] **D** Shrubs to 4 m; twigs rusty pubescent. Leaves 6–20, to 10 cm, obovate to oblong-obovate, gradually narrowed below to cuneate or rounded bases, abruptly short-acuminate to acute at tips, glabrate to glabrous above, permanently rusty-pubescent beneath; petioles 4–7 mm, channeled. Flowers 1.2–2 cm wide, axillary, appearing with the leaves, dark purple or brown; pedicels 1–8 mm, tomentulose; petals impressed-veiny, oblong or ovate. Fruits berries, 1–3 (–6) × 1–1.5 cm, pulpy; seeds 1–1.5 cm. **P** Apr–May; Jul–Sep. **H** Dry pinelands; sandy oak woods and bluffs. **S** Rare, Coastal Plain south of the James River. **C** A scaled-down version of *A. triloba*, inhabiting drier, sandy habitats.



Asimina parviflora

Asimina triloba (Linnaeus) Dunal; Common Pawpaw, Indian-banana. [= C, F, FNA, G, K, RAB, S, W, WH, X, Y, Z] **D** Shrubs or trees to 15 m; young twigs rusty-pubescent; bark brown, nearly smooth. Leaves 15–35 × 5–15 cm, obovate-oblong to lanceolate, gradually narrowed below to cuneate or rounded bases, abruptly short-acuminate to acute at tips, glabrous or glabrate above, permanently rusty-pubescent beneath; petioles 3–10 mm, channeled. Flowers 2.5–4 cm wide, axillary, appearing with the leaves, dark purple to brown; pedicels 8–30 mm, hairy; petals impressed-veiny, the unequal outer ones broadly ovate to orbicular, spreading, the inner ones slightly shorter than the outer, ovate, nearly erect. Fruits berries, 3–15 × 1.5–5 cm, pulpy; seeds 1.6–3.3 cm. **P** Mar–May; Aug–Oct. **H** Moist, rich, often alluvial forests. **S** Common throughout.

Wild Ginger sex not as it seems

(Continued from page 1)

of authority, like a certain PowerPoint lecture that can be downloaded from a major university located somewhere in the Midwest (I'm not telling which, but it is not hard to find) in which the wild ginger of eastern North America (*Asarum canadense*) is a featured example of fly-mediated pollination. Flies and wild ginger make a great and convincing story, but it's not the whole truth!

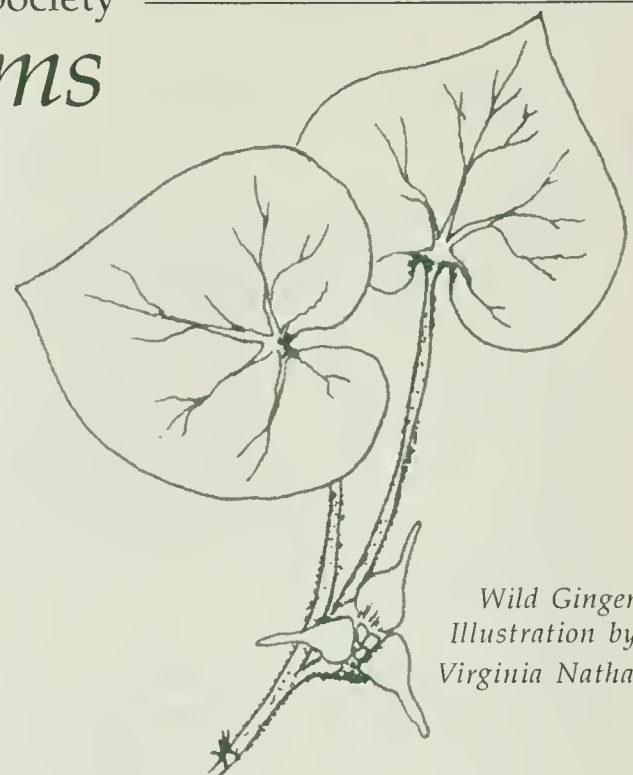
Some of the first chinks in the wild ginger-fly story appeared in a 1940 article by Donald Culross Peattie titled, "How is *Asarum* pollinated?" Peattie's article summarizes earlier literature and recounts his own observations of multiple species of *Asarum* and *Hexastylis* in their native habitats in North Carolina and California. Peattie's main points are: 1) earlier published accounts of wild ginger-fly interactions are mere assertions not accompanied by data, 2) prior to 1940, at least two detailed studies, one in Europe and one in Alabama, failed to record any insect visitors to wild ginger flowers, and 3) wild ginger flowers emit no detectable odor at all, whereas bona fide fly-pollinated flowers are typically foul-smelling, sometimes in the extreme. Peattie ends with a plea for well-documented studies of wild ginger pollination.

Since Peattie's article, a few detailed studies of wild ginger have been published. The consensus emerging from several studies since the 1980s is that wild ginger flowers are self-pollinated (these are well summarized in Kelly 1997, 2001). The evidence is compelling: intact flowers that are carefully bagged to prevent access by in-

sects set seeds at rates equivalent to untouched control flowers while flowers that are carefully emasculated (anthers removed before pollen is mature) but left uncovered (i.e., available to potential insect visitors) produce very few seeds. The evidence shows that self-pollination predominates and cross-pollination is rare.

In the case of *Asarum canadense* and closely related species, the details of self-pollination are fascinating. As soon as the flowers open, stigmas are receptive but the pollen is not initially located nearby because the stamen filaments (stalks) are bent to a position parallel with the base of the floral cup. Over a period of several hours to several days, filaments straighten, bringing the pollen-bearing anthers into proximity with the stigmas. Cross-pollination would be possible if an insect visitor brought pollen to a flower shortly after opening, but it seems that insect visits of any kind are rare, and most seeds form as a result of delayed autonomous self-pollination brought about by reorientation movements of the stamens. At present, documentation of a minor role for cross-pollination by gnats or flies rests with some of the western U.S. species of *Asarum*. *Asarum hartwegii* emits a faint musty floral fragrance (Mesler & Lu, 1993) and mushroom flies are reported to lay eggs in the flowers of several western species (Meeuse & Morris, 1984). But, our eastern wild ginger, *Asarum canadense*, seems to be overwhelmingly self-pollinated.

The story for the closely related wild gingers sometimes classified in the genus *Hexastylis* is a bit different. In these plants the stamens are short, their anthers are located well below the stigmas, and their filaments undergo



Wild Ginger
Illustration by
Virginia Nathan

no repositioning movements. The distance between anthers and stigmas is too great for easy direct self-pollination. For the few species studied, it seems that a variety of small insects visit flowers of *Hexastylis* and, while scrambling around inside, move pollen from anther to stigma, but these pollination events are overwhelmingly within the same flower, not crosses between different flowers (Otte, 1977).

So, things are not always as they seem. Wild gingers look like they ought to be cross-pollinated by flies but the best available evidence is that only some species are and then only some of the time; self-pollination, whether autonomous (in *Asarum*) or insect-assisted (in *Hexastylis*) appears to be the norm for these curious plants.

References cited: 1) Kelly, L. M. 1997. "A cladistic analysis of *Asarum* (Aristolochiaceae) and implications for the evolution of herkogamy." *Amer. J. Bot.* 84: 1752-1765. 2) Kelly, L. M. 2001. "Taxonomy of *Asarum* section *Asarum*." *Syst. Bot.* 26: 28-53. 3) Meeuse, B., & S. Morris. 1984. *The Sex Life of Flowers*. Faber, London. 4) Mesler, M. R., & K. I. Lu. 1983. "A re-evaluation of the green-flowered *Asarum* (Aristolochiaceae) from southern Oregon." *Brittonia* 35: 331-334. 5) Otte, D. 1977. "The pollination biology of *Hexastylis arifolia* (Michx.) Small var. *arifolia* and *H. minor* (Ashe) Blomquist (Aristolochiaceae) in the area of Chapel Hill, North Carolina." master's thesis, University of North Carolina, Chapel Hill. 6) Peattie, D. C. 1940. "How is *Asarum* pollinated?" *Castanea* 5: 24-29. 7) Vogel, S. 1978. "Pilzmückenblumen als Pilsimiten." *I. Flora* 167: 329-366.

W. John Hayden, VNPS Botany Chair

Master Naturalists accepting applications

Applications are now being accepted for the Arlington Master Naturalist Program that starts this fall. Make a difference by becoming a Master Naturalist volunteer!

For information and to complete an application for the Arlington program, visit the Arlington Regional Master Naturalist website at www.armn.org. For additional questions, please email

arlingtonmasternaturalist@gmail.com. Training programs are also starting all across the state. For information about the statewide program and for chapters in other parts of the commonwealth, visit www.virginiamasternaturalist.org.

The Virginia Master Naturalist Program is a statewide volunteer corps providing education, outreach, and service (See *State naturalists*, page 8)

•Bird study

(Continued from page 3)

2-5 percent of the goldfinch diet, depending on the time of year. The data also show that summer, fall and winter seeds make up 96, 99 and 97 percent, respectively, of their diet. Its spring diet is 49 percent animal food such as insects and 51 percent plant food. This is outstanding information for anyone who wants to attract goldfinches to the landscape!

The book also answers questions such as "What wildlife utilizes sweet gum for food?" and "To what extent does wildlife prefer sweet gum for food?" The answers are "mallard ducks, bobwhite quail, Carolina chickadees, juncos, white-throated sparrows, towhees, Carolina wrens and the eastern chipmunk eat sweet gum seeds as .5 to 2 percent of their diets; goldfinches 5-10 percent, squirrels 2-5 percent and beaver (seeds and wood) 10-25 percent of their diet. The authors remark that "this plant is used to only a small extent by wildlife." This is excellent information! It helps a landscaper decide whether or not to include a native sweet gum tree in a landscape design or restoration project.

Duck hunters might be interested in the aquatic and marsh section, where

the food habits of specific waterfowl are listed. Fur and game animals are listed with their food preference data. All this information can be used to help invite wildlife home by planting favorite foods. Cultivated plants such as corn, wheat and barley have their own sections with wildlife and food habit data.

This information stands the test of time. Bird food habits and woody plant preferences should be about the same in 2010 as in 1951. The only difference might be that the number of invasive plants as a percentage of wildlife diet may have increased as invasives have secured a stronger hold on the native landscape.

The chapter that brings closure to this article is titled "Wildlife Plants Ranked According to their Value." Songbirds are the greatest part of each plant value but the ranks also consider water, marsh, shore and upland game birds, fur, game and small mammals and browsers. The plants are listed by common name. Field and lab limitations made it difficult to drill down past genus to identify plant species.

The woody plants that rank from 1 to 20 for their wildlife value in the southeast region of U.S., including Virginia's piedmont and coastal plain,

are in *descending* order: oak, pine, blackberry, wild cherry, greenbrier, grape, blueberry, hickory, black gum, holly, poison-ivy, beech, maple, Virginia-creeper, persimmon, wax myrtle, dogwood, mulberry and tulip tree.

The woody plants that rank from 1 to 20 for their wildlife value in the northeast region of the U.S. are in *descending* order: oak, blackberry, wild cherry, pine, dogwood, grape, maple, beech, blueberry, birch, sumac, aspen, spruce, hickory, fir, alder, poison-ivy, black gum, mulberry and elm.

When cross-referenced with Douglas W. Tallamy's *List of Woody Plants Ranked by Ability to Support Lepidoptera Species* (Bringing Nature Home, 2007) the following are truly dual-purpose, highly beneficial native plants: oak, wild cherry, blueberry, maple, pine, hickory and beech. In all categories, the mighty oak comes out on top. The U.S. Forest Service *Silvics Manual* honors the white oak, *Quercus alba*, as "an outstanding tree of all trees."

Gail Farley (gailfarley@verizon.net) is a member of the South Hampton Roads Chapter and an author/speaker who has developed a program titled, "10 Lawn and Landscape Practices that Benefit Homeowners, Watersheds and Wildlife."

See the address label for your membership expiration date VNPS Membership/Renewal Form

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*Please designate one person as delegate for Associate membership

To give a gift membership or join additional chapters: Enclose dues, name, address, and chapter (non-voting memberships in any other than your primary chapter are \$5)

I wish to make an additional contribution to ___VNPS or_____Chapter in the amount of ___\$10___\$25___\$50___\$100___\$(Other)_____

___Check if you do not wish your name to be exchanged with similar organizations

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Which chapter do you wish to join? (See www.vnps.org)_____

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VNPS Membership Chair, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

Membership dues are tax deductible in the amount they exceed \$5. Contributions are tax deductible in accordance with IRS regulations.

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www.vnps.org

Sally Anderson, President
Nancy Sorrells, Editor

Original material contained in the *Bulletin* may be reprinted, provided credit is given to VNPS and the author, if named. Readers are invited to send letters, news items, or original articles for the editor's consideration. Items should be typed, on disk in Microsoft Word or e-mailed to: Editor, 3419 Cold Springs Rd., Greenville, VA 24440, or lotswife@comcast.net. The deadline for the next issue is March 1.

•Back Bay

(Continued from page 2)

traffic, which would disturb sensitive marsh birds and other wildlife and threaten the recovery of the bay's submerged grasses — critical for maintaining water quality and providing food and shelter for fish and birds. Propellers can easily get entangled in and destroy underwater grasses in the shallow bay.

Hundreds of local fisherman and other residents have consistently opposed the project, and the U.S. Environmental Protection Agency and U.S. Fish and Wildlife Service, which manages the refuge, recommended against the permit, the wildlife agency saying the marina would pose "substantial and unacceptable" impacts to the bay. The Virginia Department of Game and Inland Fisheries also expressed grave concerns about impacts of the project on wildlife, aquatic grasses, and water quality.

However, after conducting only a minimal environmental assessment, the Army Corps of Engineers issued the permit in 2008, saying that its no-wake-zone policy, instituted in part of the bay in 2006, would protect the refuge — even though it acknowledged it had not enforced the no-wake-zone policy and it did not have the money to do so.

In December, the Southern Environmental Law Center, on behalf of Friends of Back Bay and Back Bay Restoration Foundation, filed suit in U.S. District Court in Washington, D.C., challenging the permit for failing to meet requirements of the Clean Water Act and other laws.

Article taken from the Southern Environmental Law Center website. See www.southernenvironmental.org for more information or to read the entire case.

Botanical field meeting set

The 2010 Joint Field Meeting of the Botanical Society of America (Northeastern Section), Torrey Botanical Society, and the Philadelphia Botanical Club will explore the botany of Berkshire County, Mass., from June 20 to 24. Participants will stay at Buxton School in the heart of Williamstown, Mass.

Field trips, by bus, will include Mount Greylock, the highest mountain in Massachusetts with its own unique subalpine boreal forest and Bartholomew's Cobble, a National Natural Landmark noted for its great fern species diversity.

The cost is \$350 including four nights' lodging and meals from Sunday night through Thursday breakfast. Without room, price is \$225. For information contact Chair Nan Williams at nnwrowe@gmail.com or 413-339-5598.

•State naturalists

(Continued from page 6)

dedicated to the beneficial management of natural resources and natural areas within their communities. It is jointly sponsored by Virginia Cooperative Extension, the Virginia Department of Conservation and Recreation, the Virginia Department of Forestry, the Virginia Department of Game and Inland Fisheries and the Virginia Museum of Natural History.

Interested Virginians become Master Naturalists through training and volunteer service. The process for becoming a certified Virginia Master Naturalist typically takes 6 to 12 months. One starts by completing a 40-hour basic training course offered by a local chapter. An additional 8 hours of advanced training are also required. An important part of the certification process is the required 40 hours of volunteer service.

Virginia Master Naturalist programs and employment are open to all, regardless of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. An equal opportunity/affirmative action employer.

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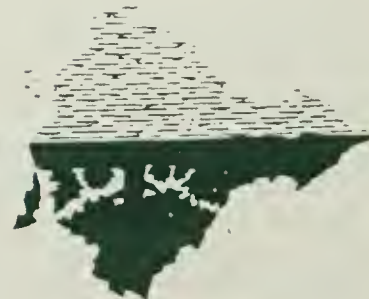


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Bulletin

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Conserving wild flowers and wild places

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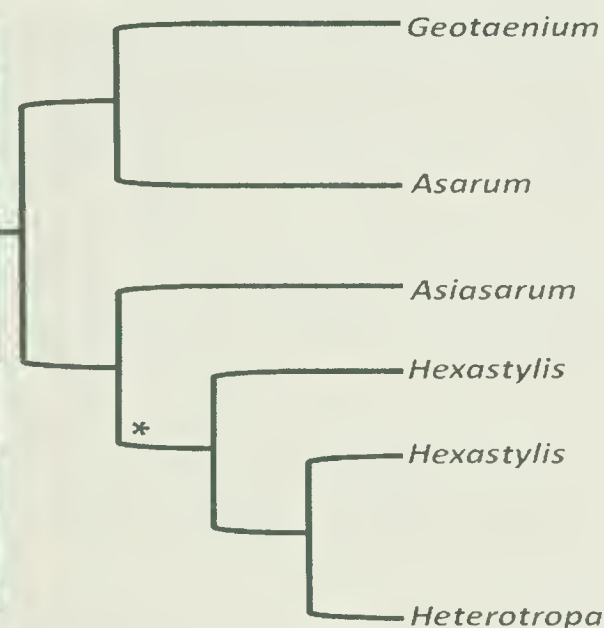
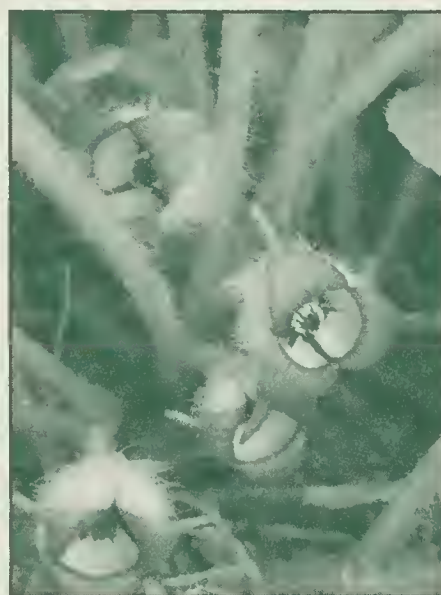
One lump or two:

How many wild gingers inhabit North America?

Depending on which source one consults, the answer is either one (*Asarum*), or two (*Asarum* + *Hexastylis*). It is a classic lump-or-split situation. To mention just a few sources, Fernald (1950) and Gleason & Cronquist (1991) lump all the wild gingers into a single genus, whereas Radford et al. (1968), the Digital Atlas of the Virginia Flora (Virginia Botanical Associates 2010), and the *Flora of North America* (Whitmore & Gaddy 1997; Whitmore et al. 1997) split *Asarum* and *Hexastylis* apart. Deference to authority is a poor way to assess any scientific question, and for these wild gingers, the authorities are deeply split. To understand the case at hand, one needs to dig a little deeper.

Let's consider morphology first. There is a long tradition in botany that genera should be distinguished from each other based on qualitative differences in the plants' flowers and fruits, whereas species within a genus should be distinguished by non-floral characters or quantitative aspects of the reproductive structures, i.e., mere dimensions, not basic morphology of flowers and fruits. Oaks provide an excellent example: fruits of any oak species are readily recognized as some sort of acorn, but acorns of different species of oak come in different sizes, the ratios of cap to nut also vary, as do many aspects of the leaves and bark.

On first impression, all the wild gingers share a similar morphological aspect: all are herbaceous
(See Wild ginger, page 5)



Simplified cladogram of wild gingers, after Kelly (1998). Genera at branch tips represent narrow (split) taxonomic concepts and contain from one to several dozen species each; asterisk marks the common ancestor to *Hexastylis* and *Heterotropa*.

Annual Meeting to focus on flora at Shenandoah National Park

An Annual Meeting filled with spectacular surroundings, informative speakers and great field trips is in the final planning stages as the Piedmont Chapter prepares for VNPS members to meet at Shenandoah National Park (SNP) September 10-12. Piedmont Chapter members hope to offer a meeting not to be missed. On Friday, September 10, SNP botanist Wendy Cass, will offer an overview of the park flora and efforts to protect it. The speaker at Saturday's dinner will be a valued friend of VNPS, Gary Fleming, whose in-depth knowledge of Virginia's plant communities, including those of the park, is rivaled only by his artistic skill in photographing them. Gary is Vegetation Ecologist for the Virginia Natural Heritage Program.

(See Annual Meeting, page 6)

INSERT: Check out the spring wildflower events, pages 3-4



From the president

Happy Spring! Get outside and play!

I went out a few days ago and found a single bloodroot. Two days later the woods were speckled with them. It's hard to keep up when it seems like you can almost see things growing.

Once again, the first Saturday of May has been chosen for the statewide Invasive Plant Removal Day, jointly sponsored by VNPS and Virginia Master Naturalists. I know lots of us will be pulling weeds before then, but I hope we can use this date as a day of educating people in a local setting. Concerns have been brought up about disturbing nesting birds at this time of year, so please take that into consideration when you plan, and I hope you will try to make this event a reality in your area. You can find the website at www.virginiamasternaturalist.org/invasives/index.html or use a web search, and register your event.

Our winter workshop was a delight and, as a result, speaker Dot Field will lead a field trip for us to Savage Neck Dunes on the Eastern Shore this fall. Two other state field trips are also scheduled, the first in June at the Smithsonian Conservation Biology Institute in Front Royal, and the other also in the fall at the New Kent Forestry Center between Richmond and Williamsburg. The details can be found in this newsletter.

The week-long trip to Southwest Virginia is full, and a waiting list is being kept. I hope those of you who did not sign up in time or cannot go this year will check back with us next year. I expect that we will continue to offer this trip in the future.

And now, go outside and play!

Your president,
Sally Anderson

VNPS 2010 State Field Trips

\$10 donation per trip. Please register with the VNPS Office at 400 Blandy Farm Lane #2, Boyce, VA 22620, vnpsoc@shentel.net or phone 540-837-1600. More details are coming on the October trips in a future issue or on the web.

June 26 (rain date June 27), 10 a.m.-1 p.m. (register by June 14)

Smithsonian Conservation Biology Institute, Front Royal, VA [formerly Smithsonian Conservation Research Center] Norm Bourg, Plant Ecologist and Ecological Research Programs Manager, will give a highlights tour of the center. We will visit a 25 ha plot that is being used to study carbon sequestration. Within this plot is a 4 ha deer enclosure where you can see the effects of limiting deer herbivory on sapling growth, native wildflowers and invasive plants. Also visit an American chestnut orchard and, if time permits, look at a pasture restoration site. Bring a picnic lunch, as we will end the trip at a high hill with great views. Bring water and a hat, and be prepared for the usual insects and ticks.

October 1, 10:30 a.m.-3 p.m.

Walk the boardwalk through a swamp at what was formerly the New Kent Forestry Center near Providence Forge. Trip will be led by College of William and Mary botanist Donna Ware.

October 2, 10:30 a.m.-3 p.m.

See a 50-foot sand dune, many plant communities, and a beach that is home to rare tiger beetles at Savage Neck Dunes Natural Area Preserve. Led by Natural Heritage botanist Dot Field.

I would like to attend the following trips:

___ \$10 Smithsonian Conservation Biology Institute

___ \$10 New Kent Forestry Center

___ \$10 Savage Neck Dunes

___ Total

Enclose check with this information or call the office to register with credit card.

NAME _____

VNPS CHAPTER _____

ADDRESS _____

PHONE _____

EMAIL _____

Virginia Wildflower Celebration 2010

The 13 chapters of the Virginia Native Plant Society celebrate the rich diversity of the native flora of the commonwealth each spring. Society members will share their enthusiasm for wild plants and wild places on field trips and wildflower walks, and during garden tours, plant sales, and a variety of other programs throughout the state.

You are cordially invited to any of the activities listed below; they are all open to the public. As some events require reservations, fees or additional instructions, use the contacts provided to obtain further information. Plants propagated by members will be available at chapter plant sales.

As you travel about the state, watch for the 2010 VNPS Wildflower of the Year, wild ginger (*Asarum canadense*). It occurs throughout much of the northeastern U.S. and has been documented in all of Virginia's mountain and piedmont counties and half of the coastal plain counties. Perhaps you can add to that list of documented sites. The reward of finding wild ginger blooms goes to those who push the spreading plant leaves aside to glimpse the jug-like spring flowers.

Wildflower Calendar of Events

Bluebells and Bloodroot: Spring Wildflowers of the Floodplain (Fairfax County) - Saturday April 17, 10-11:30 a.m. Identify Riverbend Park's beautiful spring ephemerals and learn their associated folklore as we walk along the banks of the Potomac River. Canceled if rain. \$5/person, 703-759-9018.

Spring Notable Wildflowers Field Trip to Reddish Knob and Flagpole Knob, W.Va. - Saturday April 17, 8 a.m. - 5 p.m., sponsored by James Madison University's Edith Carrier Arboretum. Departure at 8 a.m. from the Frances Plecker Education Center parking lot; return about 5 p.m. See wildflowers like lupine and bloodroot. Walk and interact with trip lecturer Dr. Conley McMullen along mountain trails. This mountain ecosystem is a northern plant paradise. \$30 per person, pre-registration required at www.jmu.edu/arboretum/forms/wildflowers_fieldtrip_april_17_2010.doc

Buffalo Creek Field Trip (Blue Ridge Wildflower Society) - Saturday April 17. Rich Crites will lead a group to a VNPS Registry sites. Look for bluebells, dwarf ginseng, walking fern and more. Bring a lunch. Call Crites at 540-774-4518 for details.

Upper James River Chapter April Wildflower Walk - Saturday April 17, 9:30 a.m.-noon. Explore Brushy Hills, the Chessie Trail, Washington & Lee campus and more in Rockbridge County and Lexington. For more information call Peggy Dyson-Cobb at 540-464-3511.

A Spring Morning Along the River - Sunday April 18, 7:30 a.m.-noon. Join Leader Stephanie Mason for this early spring exploration of the Potomac River bottomland woods above Great Falls, Md. Mason leads this search for spring wildflowers, swelling buds, and early spring wildlife, including birds, butterflies, and amphibians. The natural surface trail is mostly level, but can be muddy. Audubon

members \$23; nonmembers: \$32. For information or to register call 301-652-9188 x16 or visit www.audubonnaturalist.org/.

Earth Day Festival in Staunton, Va. (Shenandoah Chapter plant sale) - Sunday April 18, 9 a.m.-noon. Celebrate the 40th anniversary of Earth Day and visit the Shenandoah Chapter Plant sale booth at the Earth Day Festival in downtown Staunton across from Sunspots (near the Farmer's Market) on the wharf.

Wildflower Walk at James Madison University's Edith Carrier Arboretum - Sunday April 18, 2 p.m., beginning in the Pavilion, a walk presented by the VNPS Shenandoah Chapter. Visit www.jmu.edu/arboretum/ for directions or more information.

Bull Run Bluebell Walk - Sunday April 18, 2-3 p.m. A spectacular show of bluebells, spring beauties and other spring wildflowers along a 1½-mile path. Join in this more than 30-year tradition. No reservations required. Call the nature center or Bull Run Regional Park directly at 703-631-0550 for more info.

James Madison University Edith Carrier Arboretum Native Plant Sale (Harrisonburg) - Friday and Saturday April 23-24, 9 a.m.-3 p.m. Visit www.jmu.edu/arboretum/ for directions or information.

Blue Ridge Wildflower Society Great Smoky Mountain National Park Field Trip - Saturday and Sunday April 23-24, chapter members meet in Gatlinburg, TN on Friday at the Sugarlands Visitor Center at 6 p.m. Saturday's activities will be planned Friday evening. Lodging on your own. Trip coincides with the Great Smoky Mountain Wildflower Weekend (www.springwildflowerpilgrimage.org). Come prepared with layers of clothing, sturdy shoes, rain gear, and snacks. For more information contact Butch Kelly at 540-384-7429 or Rich Crites at 540-774-4518.

Riverfest in Waynesboro (Shenandoah Chapter plant sale) - Saturday April 24, 10 a.m.-4 p.m. Shenandoah Chapter Plant sale at the Waynesboro Farmers Market in downtown Waynesboro at the South River.

Upper James River Chapter April Wildflower Walk - Saturday April 24, 9:30 a.m.-noon. Explore Brushy Hills, the Chessie Trail, Washington & Lee University campus and more in Rockbridge County and Lexington. For more information call Peggy Dyson-Cobb at 540-464-3511.

Prince William Wildflower Society 24th Annual Garden Tour - Sunday April 25, noon-5 p.m. Email pwws.vnps@yahoo.com or call 703-368-2898 to receive a brochure with directions to the homes on tour.

Blue Ridge Wildflower Society General Membership Meeting - Monday April 26, 7 p.m. "Gardening for Wildlife Enhancement" by Suzie Leslie. Roanoke Church of Christ. Call Rich Crites at 540-774-4518 for more information.

Rock Castle Gorge-Blue Ridge Parkway Field Trip (Blue Ridge Wildflower Society) - Saturday May 1, 9 a.m.-early afternoon. Join trip leader Butch Kelly on a trip to this special place below the heights of the Blue Ridge Parkway. Look for trillium, violets, Indian paintbrush, and flame azalea. Bring a snack. Stop for late lunch at Tuggles Diner. Call Kelly at 54-384-7429 for details.

Project Learning Tree - Saturday May 1, 10 a.m.-4 p.m. Project Learning Tree (PLT) is an interdisciplinary, award-winning environmental education program for adults designed by educators for educators. Participants receive PLT PreK-8 Environmental Education Activity Guide packed with 96 multidisciplinary activities. Bring a bag lunch and drink. The facilitator is environmental educator and Fairfax Master Naturalist Eliza-

(Continued on page 4)

Wildflower Calendar

beth Burke. For information call 703-228-6535. Meet at Long Branch Nature Center, 625 S. Carlin Springs Rd., Arlington, VA 22204. Free. Register at www.arlingtonva.us/calendar/default.aspx#EventDetails_8933. (Select Program #: 643610-04)

Wildflower Weekend Webster County, WV (Shenandoah Chapter) - Saturday and Sunday May 1-2. Visit Camp Caesar in West Virginia. Contact Jay Shaner at 540-886-5763 for more information.

Spring Woods of Chapman Forest - Sunday, May 2, 10 a.m.-3 p.m. Leader Bob Pickett will take a group to Chapman's Landing on the Potomac River in Charles County, Md. This extraordinary and unique place with a diversity of old-growth trees has been protected since 1750. Site contains 13 species with a trunk diameter of 9 feet or more including a tulip tree and chinquapin oak over 16 feet in diameter and a 15-foot sycamore. Hike through the various habitats and ravines in search of these behemoths, enjoying their fresh spring foliage,

as well as the wildflowers that grow beneath them. Plan to cover up to 4 miles, mostly on natural surface trails, but with some off-trail hiking and some steep, but short, ascents and descents. Audubon members: \$25; nonmembers: \$35. For information or to register, call 301-652-9188 x16 or visit www.audubonnaturalist.org/.

Trillium Trek - Sunday May 2, 8:30 a.m.-4 p.m. (Adults) Travel to Linden, Va. to see one of the largest (millions!) Great White Trillium displays in the world. This area is filled with (often rare) wildflowers and trees, including native orchids and a variety of wildlife to observe. On the somewhat rocky two-mile trail we'll discuss plant folklore and ethnobotany. Before we head home, we'll stop to purchase local country crafts and apple products. Dress for hiking; bring water and a bag lunch to eat on the trail. \$25 fee due upon registration. Van leaves from Lubber Run Center parking lot, 300 N. Park Dr., Arlington, VA 22203 or will pick up from Ballston Metro Station with advance request: 703-228-6535.

\$30 fee due upon registration Register at <https://registration.arlingtonva.us>. (Select Program #: 643610-09)

Blue Ridge Wildflower Society Annual Spring Wildflower Sale - Saturday May 8, 8 a.m.-2 p.m. Call Rich Crites (540-774-4518) or Jim Bush (540-929-4775) for more information.

Prince William Wildflower Society 28th Annual Wildflower and Native Plant Sale - Saturday May 8, 9 a.m.-noon. Bethel Lutheran Church grounds, 8712 Plantation Lane, Manassas.

Arcadia Field Trip (Blue Ridge Wildflower Society) - Saturday May 22, meet in Botetourt at 9 a.m. Rich Crites will lead a group to Arcadia and up the mountains to the Blue Ridge Parkway. The goal is to see pink and yellow lady-slippers. Call Crites at 540-774-4518 for information.

Rhododendron Day on the Blue Ridge Parkway Field Trip (Blue Ridge Wildflower Society) - Rudy Albert (540-774-2279) will lead a group on the chapter's annual foray to the Peaks of Otter and points north. Flame Azalea should be in full bloom.

Fairfax takes invasive removal seriously

In Fairfax County, residents are taking the third annual Invasive Plant Day on Saturday, May 1 very seriously. Local sites are available for those interested in participating in the third annual, statewide Invasive Plant Removal Day. The activities at the state level are being coordinated by the Virginia Native Plant Society and the Virginia Master Naturalists and can be found online at www.virginiamasternaturalist.org/invasives/

In Fairfax County, the Invasive Management Area (IMA) volunteers and park authority staff will target nonnative invasive species that negatively affect the quality of our natural areas. Nonnative invasive species invade natural areas, threatening trees, devaluing wildlife habitat and lowering the quality of the resources. The park authority's all volunteer IMA program has workdays throughout the year, but on May 1, activities will take place as follows:

- Falstaff in Dranesville District (9 a.m.-noon)
- Fred Crabtree in Hunter Mill District (9 a.m.-noon)
- Huntley Meadows in Lee District (9:30 a.m.-noon)
- Mason District in Mason District (9 a.m.-noon)
- McLean Central in Dranesville District (9 a.m.-noon)
- Rocky Run in Springfield District (9 a.m.-noon)
- Royal Lake in Braddock District (7 a.m.-10 a.m.)
- White Oakes in Mt. Vernon District (8 a.m.-11 a.m.)

If you are interested in volunteering please contact Kathy Frederick at 703-324-8681 or **register online at** www.fairfaxcounty.gov/parks/resources/IMA/whatareinvasives.htm.

Invasive species are, generally, nonnative species that cause ecological or economic harm. They share certain characteristics, such as being able to mature quickly, generate many offspring and can tolerate a wide range of habitats. Because of the characteristics that allow a species to successfully establish in new territory, invasive species make terrible neighbors.

Wintergreen offers 27th wildflower symposium

In the early spring before the trees are full, the hillsides are warmed by the sun and the wildflowers are in full bloom. Experience this special time at Wintergreen Resort by attending the 27th annual Spring Wildflower Symposium May 14-16 at the Wintergreen Nature Foundation located in the Blue Ridge Mountains.

Instructors for the weekend include well-known botanists, authors, and artists, each prepared with a full weekend of activities and lectures that will reconnect you with nature. The weekend offers something for everyone from walks to workshops and lectures. There will also be a native plant sale of seedlings propagated by the Wintergreen Nature Foundation. Regional artists will be on hand to share their work and offer workshops.

Visit www.twinf.org for a full brochure. Reservations are required and can be made on line or by mail. Accommodations are available at Wintergreen Resort. Registration is \$120 but early bird discounts are available. Cost does not cover lodging.

Act responsibly when collecting seed from the wild

The Virginia Native Plant Society promotes conservation and protection of native plant species and their habitats. Recognizing the growing interest in incorporating native plants into the landscape, the society has created a list of nurseries that specialize in growing native plants. To the best of our knowledge, these nurseries do not collect plants from the wild, and neither should you. Instead you can grow plants from seeds that have been collected responsibly from the wild.

What does it mean to responsibly collect seeds from the wild? To answer this question, we offer the following guidelines. These guidelines will help ensure that our native plants and their habitats are not put at risk due to seed collecting.

1. Do not collect seeds from plants that are rare, threatened, endangered or on the watch list. These plants are protected by federal and state laws. Refer to the Virginia Department of Conser-

vation and Recreation Division of Natural Heritage list of rare plants.

2. All native plant seeds require special treatments and storage for successful germination. Know the requirements prior to collecting the seed. Do not collect seeds that you are unable to handle properly especially if they are difficult to germinate. There are many references available on propagating native plants.

3. Obtain permission from landowners (public and private) before collecting seeds. Please note that seed collecting is prohibited on some public lands and that special permits may be required.

4. Collect a minimum amount of seed following the guidelines outlined below:

- Collect seeds from large healthy populations of plants where collecting will not damage the population's ability to survive and prosper.
- Never collect all seeds from a single plant or from a small group of plants.

- Never collect the entire plant except for bona fide scientific research using proper safeguards, which should include never collecting the only plant.

- Know when seeds are ripe, and collect only those that are ready.

- As a general guide, the North Carolina Native Plant Society recommends one collection for every 20 to 50 plants.

- The New England Wildflower Society states that "Specifying a minimum population size for seed collection without significant population damage is difficult, but as a general rule, at least 20 herbaceous plants or 10 woody plants should be present at a site before any collection of seed is made. . . These collection numbers should be used as a guide, however, not a minimum threshold for relatively harmless collection. EXAMPLES: For species that produce only one or two capsules per plant, seed collectors must be careful. *Trillium grandiflorum* produces one seed capsule per plant. Since it is essentially impossible to collect only part of a capsule, a population of *Trillium* needs to contain at least 20 reproductively fruiting plants before collection of one capsule can occur. On the other hand, some woody plants, *Viburnum* species for example, can produce copious seed, and seed collection from a population with a few fruiting individuals may not reduce the overall vigor of a population."

5. Use caution when collecting seed to ensure that no damage occurs to surrounding flora, fauna or habitat.

6. Collect discreetly so as not to encourage others to collect who may do so indiscriminately. Teach others about proper and careful seed collecting.

7. Above all, always use common sense. The goal is to collect seeds such that the viability of the population is not compromised.

Kim Strader, VNPS Horticulture Chair

•Wild ginger

(Continued from page 1)

perennials with shallow rhizomes bearing kidney- to heart-shaped leaves and jug-like flowers borne essentially at soil level. Further, all the flowers are dominated by three sepals enclosing 12 stamens and an ovary composed of six subunits (carpels). Overall similarity of reproductive features could argue for lumping all into a single genus, *Asarum*. But if one looks a little closer, the sepals of *Asarum* are mostly separate from each other above the ovary, where they are clearly fused and tubular in *Hexastylis*, the anthers of *Asarum* have terminal appendages that are absent in *Hexastylis*, and the ovary of *Asarum* is inferior whereas ovaries in *Hexastylis* are superior or at most one-third inferior. So, with a closer examination of reproductive structures, a case based on morphology could be made for splitting *Hexastylis*. Do the similarities outweigh the differences? Are the similarities somehow more important, and the differences mere details? Or vice versa? These questions have no obvious single answer; morphology could be used to justify either splitting these genera apart or lumping them as one. Natural diversity does not come sorted and labeled; the patterns that nature gives us don't always fit simple, preconceived notions of what should constitute a distinct genus. Nevertheless, at some point a decision needs to be made, and it looks like morphology is not going to decide this case.

Over the last two decades or so, plant systematists have made great strides in deciphering the details of relationships among plants. Two revolutions have brought this about: 1) the adoption of cladistic methods for reconstructing evolutionary relationships (phylogeny) and 2) the inclusion of molecular characters (DNA or gene-sequence information) in cladistic analyses. Lawrence Kelly has published two cladistic analyses of wild gingers, one based entirely on morphological data

(See *Ginger confusion*, page 8)

Student learns about invasives in Bay

Editor's Note: As a member of the Virginia Outdoor Writers Association, I recently attended that group's annual meeting at which we awarded prizes to high school and college students in an outdoor essay contest that VOWA sponsored. Taking home first place in the high school category was a young lady named Grace Perkins, a senior at Lancaster High School on the Northern Neck in White Stone. Her article on the dangers of the invasive water plant, *Phragmites australis*, fits in nicely with VNPS efforts to eradicate invasive plants. --VNPS Bulletin Editor Nancy Sorrells.

Phragmites australis. I could hardly pronounce it, and I knew I did not want to spend my summer vacation studying it. However, the Chesapeake Bay Governor's School for Marine and Environmental Science requires a two-year investigative project. Having learned to curse *P. australis*' very existence in class, I decided a relevant yet simple study would be a comparison of the effects of this invasive nonnative marsh grass with those of a native grass *Spartina cynosuroides* on the fish population of a Chesapeake Bay salt marsh.

My first mistake was believing this would be a leisurely undertaking. Field studies are intense, especially those dealing with tides. The second mistake was choosing a site 40 minutes from my house. The tide cycles must be Mother Nature's practical joke. To cast my seine nets at low tide, I rose before sunrise and reached the marsh by daybreak. Then, I returned home and, six hours later, drove back to the marsh to pull in the nets. While my classmates woke up at noon, loaded the toaster with Pop-Tarts, and logged onto Facebook, I was in my maroon pickup truck, dressed in old t-shirts, shorts, and water shoes (the ugliest article of clothing ever invented) on my way to wade in cold, brackish water. Despite weeks of sinking up to my knees in the darkest, slimiest mud imaginable, slapping at mosquitoes, and watching out for spiders and cottonmouths, I repeatedly reeled in empty nets in the *P. aus-*

tralis marsh. It was disheartening, but I redesigned my method of capture and began using cylindrical fish traps.

After revising, my project yielded statistically significant results. I compared three variables between the *P. australis* and the *S. cynosuroides* marshes: fish abundance, fish species diversity, and plant density. The first variable, fish abundance, proved to be the most significantly different; 358 fish were caught overall in the native *S. cynosuroides* marsh, while only 133 fish were caught in the invasive *P. australis* marsh. Running a paired t-test between the numbers of fish caught yielded a highly significant p-value of 0.008. Unfortunately, the other two variables did not prove to be significantly different. The species of fish caught in each marsh (marsh killifish, mummichogs, sheepshead minnows, and striped killifish) produced almost identical Shannon-Wiener Diversity Indexes; both were approximately 1.10. Thirdly, *P. australis* was found to be denser, but the data was not significantly so. An interesting trend in the data, however, showed that, on average, fish caught in the *P. australis* marsh were larger. I speculated this was because only hardier, older fish can survive in a possibly harsher environment for which they have not evolved. Invasive species, like *P. australis*, have the potential to destroy a well-established marsh. It is necessary to check their growth, as marshes are one of the first indicators of problems that can jeopardize a pro-

ductive and healthy Chesapeake Bay.

This summer, I learned firsthand how *P. australis* can devastate a marsh. As important, however, I experienced the Chesapeake Bay in a new way. Although I have grown up in a small, rural area where many of my classmates' families depend on the menhaden and oyster industries, I only knew the Bay through tubing and jet skiing. For 10 years, I have lived a short distance from the waterfront, but until this summer, I had never experienced its natural rhythms and beauty. I can now say I have watched the pinks and oranges of the rising sun paint the sky over Rockhole Creek. I have cast a net in cool water up to my ankles and caught marsh killifish and fiddler crabs. A blue heron has shared the mornings with me, and at the time, we seemed like the only living things in the world. I have driven with the windows down, the salty air blowing my hair around and big band music from the only available radio station turned all the way up. I felt infinite, like I was a part of something larger than myself.

This project taught me that science is not always the neat, controlled labs conducted in school. It can involve hard, even smelly, work. Experiments may require revision or redesign, and they do not always produce the expected results. These unlooked-for findings can lead to new ideas and experiences. Sometimes, unexpected results become the most important lessons of all.

•Annual Meeting

(Continued from page 1)

Field trips on Saturday and Sunday will cover a range of places and offer a varied focus, from energetic hikes to a relaxed workshop on nature photography. The growing list of field trip leaders includes Doug Coleman, Ton Dierauf, Jay Stipes, Marion Lobstein, and Richard Stromberg as well as park staff biologists. Piedmont planners hope for a program that will give attendees a memorable few days, experiencing the park's diversity of flora and cultural history, but also learning about strategies for combatting emerging problems such as deer damage and threats to rare plants at rock outcroppings. Perhaps equally meaningful, Annual Meeting 2010 will give members from around the Commonwealth a chance to renew friendships and find kindred souls.

Details and a registration form will be part of the summer issue of the *Bulletin*.

Wild Virginia: Working to preserve Virginia forests

Editor's Note: Recently VNPS became Wild Virginia's newest partner in its initiative to eradicate invasive nonnative plants. Here, Wild Virginia conservation director David Hannah tells us a little bit about his organization.

Wild Virginia is a grassroots, non-profit organization dedicated to preserving wild forest ecosystems in Virginia's national forests—remote and inaccessible mountaintops, large expanses of undisturbed forest, plant and animal populations, and intact natural communities. Since our beginnings in 1995, we have fought to keep these natural features a reality.

At the heart of our work is the desire to enhance the ecological integrity and biological diversity of our national forests and ensure they are maintained for future generations. The Shenandoah Mountain area of the George Washington National Forest (GWNF) is a special place and a focus of our work. It contains many headwater and wild trout streams, a healthy black bear population, and a diversity of natural communities and rare species (including the Cowknob salamander (*Plethodon punctatus*) and least trillium, *Trillium pusillum* var. *monticulum*).

Wild Virginia works for sound management of the GWNF in various

ways. Our 2008 report, *The State of Our Water*, describes the tremendous importance of the GWNF as a source of public drinking water. More than 22 communities in western Virginia obtain drinking water from the GWNF. The watersheds providing this water cover roughly 44 percent of the GWNF land in Virginia. As a result of the report, the Virginia Native Plant Society (VNPS) and 39 other organizations (including 16 localities) adopted resolutions calling for stronger protection of water quality in the national forest.

Among other ecological issues, Wild Virginia is concerned about the impact of nonnative invasive plants in the GWNF. The Shenandoah Chapter of VNPS has documented invasive plants in the forest with roadside surveys. Despite the heavy presence of invasive nonnatives, none of the forest's six wilderness areas have been surveyed or inventoried for them. In collaboration with the U.S. Forest Service, we will conduct an inventory of invasive nonnatives in Ramsey's Draft Wilderness Area during the 2010 growing season. After completing the inventory, we will work with GWNF personnel to identify the most problematic species and prioritize

them for control beginning in 2011.

Wild Virginia also sponsors monthly hikes to some of the beautiful spots our mountains have to offer. The outings are free and open to anyone who is interested and physically fit enough to enjoy them. Visit www.wildvirginia.org to read descriptions of upcoming hikes and see pictures of past ones.

Virginia's national forests are truly natural treasures, full of many diverse gems. With wild trout streams, challenging trails, caves, wildflowers and shrubs in full bloom, wilderness areas, incredible views, bird migrations and more, there is something for everyone.

A very concrete way to help is to participate in the public process of revising the Forest Plan for the GWNF. The plan is critically important, as it will dictate how the forest is to be managed for the next 10 to 15 years. We encourage everyone to get involved by attending public meetings and submitting comments to the U.S. Forest Service about how the GWNF should be managed.

To learn more about Wild Virginia, contact Hannah at P.O. Box 1065, Charlottesville, VA, 22902, 434-971-1553, dhannah@wildvirginia.org or visit www.wildvirginia.org.

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Nancy Sorrells, Editor

Original material contained in the *Bulletin* may be reprinted, provided credit is given to VNPS and the author, if named. Readers are invited to send letters, news items, or original articles for the editor's consideration. Items should be typed, on disk in Microsoft Word or e-mailed to: Editor, 3419 Cold Springs Rd., Greenville, VA 24440, or lotswife@comcast.net. The deadline for the next issue is May 15.

•Ginger confusion

(Continued from page 5)

(Kelly 1997), the other incorporating both morphology and DNA-based characters (Kelly 1998). In both studies, the species always placed in *Asarum* and those sometimes split as *Hexastylis* occupy distinctly different branches of the phylogenetic tree generated by his data (figure on page 1). Nevertheless, despite the clear split between the two, Kelly prefers to lump *Hexastylis* with *Asarum* rather than maintain them as distinct. Why, one might ask?

The problem is that the plants from the southeastern U.S. that traditionally have been called *Hexastylis* are not the only plants that occupy the branch opposite *Asarum* on Kelly's cladograms. At the base of that branch is a Chinese species sometimes classified in the genus *Asiasarum*, then there are two successive branches that contain our southeastern U.S. species of *Hexastylis*, and then another large branch containing Asian plants sometimes classified as *Heterotropa*. So, the question of whether to lump or split *Asarum* and *Hexastylis* is not the whole story here; rather it is just one aspect of how best to classify all the wild gingers of the world. In other words, the existence of

species in China impacts how we apply names to plants in North America! Further, the powerful toolkit that cladistic analysis provides comes with some rather stringent rules about how taxonomic groups can be defined. In cladistics, the foremost rule for defining taxonomic groups is that they must be monophyletic, i.e., all members of the group must have a common ancestor and the group must include all descendants of that common ancestor. And this is the essence of the problem with *Hexastylis*. As modeled by Kelly's cladograms, the species that have been traditionally distinguished by some as the genus *Hexastylis* do not constitute a group that includes all descendants of their common ancestor. Specifically, all the species classified as *Heterotropa* share a common ancestor with *Hexastylis* but are not included in *Hexastylis* as that genus has been defined. Hence, from global and cladistic perspectives, maintaining *Hexastylis* as traditionally defined for a handful of species in the southeast U.S. is untenable. It looks like the lumpers win: all wild gingers should be classified as species of *Asarum*.

Ah . . . but is that the final word? The lumpers should not be overly

smug. One could argue that the big split in the phylogenetic tree, *Asarum* (plus another small genus called *Geotaenium*) on the left side of and *Asiasarum*-*Hexastylis*-*Heterotropa* on the right side, defines two genera. A quick perusal of the dates on which the genus names of the right-hand branch were first published suggests that *Hexastylis* would have priority if all three were grouped together. So, it looks like it may be possible to maintain the *Hexastylis* split from *Asarum*, but only if proponents of that option would be willing to lump *Hexastylis* with these Asian entities which, of course, would alter the traditional concept of *Hexastylis*.

It is human nature to prefer a single, simple, straightforward answer to a question. Whether wild gingers constitute one or two genera seems like a simple, straightforward question, but it looks like nature is giving us two subtly nuanced solutions. Does this sort of conundrum leave you with a splitting headache? Perhaps a nice soothing cup of ginger tea would be just the thing . . . one lump or two?

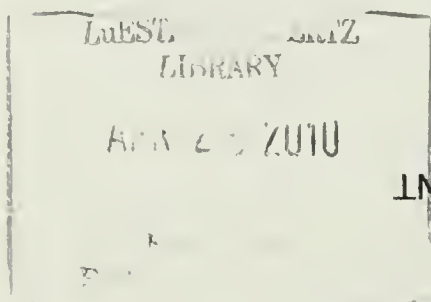
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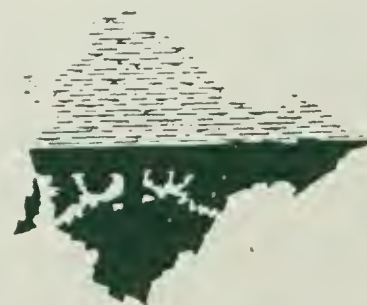


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Conserving wild flowers and wild places

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Native Connections

Lost ladybugs signal habitat changes

Have you seen some painted ladies of the summer in your fields, forests, and gardens? Chances are that you have already seen a few of these beetles this year, but they are probably not the native beetles that were once common in America. There are more than 5,000 species of ladybugs around the world and 500 in North America, but many of the North American beetles are disappearing—pushed aside by more aggressive Asian introductions or declining in numbers because of lack of habitat.

Without their evolutionary partner insects that help ward off predatory insects (many of which are introduced as well), some native plant species will suffer as well. The Lost Ladybug Project at Cornell University is seeking assistance in documenting ladybugs in this country with the Lost Ladybug Project as they try to unravel the mysteries of the disappearing ladybugs. You can sign up as a ladybug advocate and help document what ladybugs there are in your corner of Virginia's habitat by visiting www.lostladybug.org.

There are three ladybugs that the project is particularly interested in finding:

(See Ladybugs, page 4)



Quail illustration by Spike Knuth

Quail dependent on native grasses

The northern bobwhite (*Colinus virginianus*), commonly known as bobwhite or just quail, was once a common sight throughout most of Virginia. Quail numbers have declined primarily due to the loss of early successional habitat, such as fields and savannah-like forests. These habitats also support many other types of wildlife and in-

sects as well as native plants adapted to these areas. Historically, these areas were maintained by fire, which promoted herbaceous vegetation and controlled much of the shrub and tree encroachment. The incredible variety of native plants that thrive in these communities and support an abundance

(See Habitat, page 6)

Annual Meeting registration inside! Room sign-up deadline is Aug. 9.



From the president

Plant connections happen everywhere

Hello VNPS,

This is a letter from the road. . . this year May was a month when I was roaming the eastern sea-

board from New Jersey to South Carolina, and finding people and plant connections as I went. After a wonderful April visiting lots of familiar plant places, I began my travels with a quick trip to the pine barrens of New Jersey with my own Piedmont Chapter, led by member Emily Southgate. In the midst of extensive sandy-soiled woodlands we saw pygmy pine stands, cranberry bogs and white cedar swamps with grassy openings locally known as savannahs.

*Next came the VNPS trip to southwest Virginia, with a great group of members from many chapters around the state. With Butch and Betty Kelly keeping us organized and well fed, we visited lots of special places. White Top, one of our highest peaks, has an open bald and boreal woods, but also trilliums (*T. erectum*) and other spring flowers, reminding me a little of the Thompson WMA where we see the trillium (*T. grandiflorum*) display each spring. The limestone feature of Natural Tunnel is the home of a population of the federally listed plant Canby's mountain lover (*Pachistima canbyi*). Back at home the following week I went to a battlefield in Frederick County where the same plant is found on limestone cliffs at the opposite end of Virginia's mountains.*

The rich ferny slopes found in several areas that we botanized were echoed the following week when I visited with the New River Chapter and walked the rich slopes of Cedar Run on the edge of Blacksburg.

*Now, I'm writing from South Carolina, where I'm visiting the Congaree River, on foot and by kayak. It's a big change to bald cypress (*Taxodium distichum*) and tupelo (*Nyssa aquatica*) swamps, but I am also back in piney, sandy woods that have plants in common with New Jersey, and riverine forests that have many species familiar to us in Virginia. This park has a long list of state and national champion trees, reminding me of the two giants we saw in Burke's Garden in Tazewell County on the VNPS trip.*

Another connection I've found here is a person, Shenandoah National Park Superintendent Martha Bogle. She was formerly in charge of Congaree National Park, and in the visitor center I found that she was fondly remembered. She responded very warmly when we decided to hold the VNPS annual meeting in Shenandoah this fall. I hope many of you will come to our meeting, enjoy some familiar plants, see some that are different, and take time to thank Martha and the park staff who will be helping us. Now it's on to the coast, where I'll look for some salt-loving species that I might have already seen in Saltville in southwest Virginia. . . .

Your president, Sally Anderson

Dominion, Maryland NPS back the Flora of Virginia Project



The Flora of Virginia Project has received two donations you'll want to know about. Dominion Resources has provided a \$10,000 grant to support the writing of family treatments for the *Flora of Virginia*. The grant is part of Dominion's 1 million Earth Day initiative supporting community-based environmental projects and organizations in the 11 states where it provides energy. April 22 was the 40th anniversary of Earth Day.

"Dominion's commitment to the environment has been longstanding, as evidenced by the nearly \$3.5 billion we have invested in the last decade to reduce the impact of our operations on the air, water, and land," said Thomas F. Farrell II, chairman, president, and CEO. "We also recognize the importance of the efforts of other likeminded organizations, so we are pleased to be able to partner with them through these grants to help protect endangered species, restore wet-

lands, preserve forests, educate the public, and support environmental outreach."

In Virginia, Dominion provided almost \$520,000 to 41 organizations. Other recipients included Ducks Unlimited, the Audubon Society, the Nature Conservancy, and the Virginia Institute of Marine Science. Dominion is the state's largest electric utility.

So far, the Flora Project has necessarily focused on research, writing, and illustration—the nuts and bolts of creating a book—but the *Flora*, to be published in 2012, will be a pivotal reference for environmental stewardship and education. And though its focus is taxonomy, its practical scope will be broader, extending to ecological communities and systems.

We at the Flora Project have always felt that the *Flora* would be welcomed in neighboring states. When we received in May a \$1,000 donation from the Maryland Native Plant Society, we realized that botanists beyond our borders were

(See Flora project, page 5)

Natives used in rain garden, bioswale

It began when the owner of the small shopping center in Greenville (Augusta County) contacted Riverheads Supervisor Nancy Sorrells about some pavement failure associated with drainage issues at the southern edge of the village. A visit to the site in consultation with the Virginia Department of Transportation got Mrs. Sorrells thinking about loftier solutions to the problem that would involve partnerships with the schools and community groups.

When she heard about matching water quality grants being offered by the Virginia Department of Conservation and Recreation she was off and running. In October of 2007, then Gov. Tim Kaine announced that Augusta County received one of three water quality improvement grants awarded to the area.

The grant of \$40,000 from the state was to be matched with money and in-kind services coordinated through the county. The local dollar match was

approved by the Augusta County Board of Supervisors and come from the Riverheads infrastructure funds.

Fast forward to the spring of 2010 and that idea is a reality. A nice smooth entrance leads visitors into the southern end of the mini-mall, a 3,000-square foot bioswale between the parking lot and Rt. 11 is planted with native plants and mulched. The bioswale,

(See Rain garden, page 7)



BEFORE & AFTER—The DCR water quality project retrofitted a poorly functioning and ugly stormwater management basin (left) into a rain garden (above) planted entirely with native plants. The plants provide a nicely landscaped garden area and clean the rainwater before it heads to the South River (a tributary of the Shenandoah River). (Photos by Nancy Sorrells)

Follow the money.....

VNPS Treasurer offers snapshot of society finances

Revenues	Fiscal 2009	Fiscal 2008
Dues	\$ 25,844	\$ 23,677
Donations	11,352	18,482
Registration fees	23,486	19,374
Other	614	2,591
Total revenue	\$ 61,296	\$ 64,124
Expenses	Fiscal 2009	Fiscal 2008
Programs	\$ 24,124	\$ 13,758
Office & admin.	36,046	19,561
Total expenses	\$ 60,170	\$ 33,319
Net revenue	\$ 1,126	\$ 2,611
Net worth	\$65,765	\$ 64,639

Notes:

1) Dues Revenue does not include the portion of dues that is forwarded to the chapters. That amount is reflected in their reports.

2) Most Donations Revenue is money we raised to support the Flora of Virginia Project in 2008 and the Natural Treasures Hunt for the Virginia Natural Heritage Program in 2009.

No doubt you've heard the advice, if you want to know what an organization stands for, look at where it spends its money. Here is some information about our money—where it comes from and where it goes. (Further details, of course, are available to all who may inquire.)

The VNPS fiscal year is November 1 through October 31. These are the revenues and expenses of the state office. As you can see, in the broadest sense, the state portion of the dues covers the administrative responsibilities—membership, the *Bulletin*, the website, and the annual fund-raiser—necessary to run a nonprofit organization. Registration fees largely offset state program expenses.

In addition to the state funds, the compilation of our individual chapters' reports for fiscal 2009 reflects revenues of \$44,138, expenses of \$41,930. Because the state is paying most of the administrative cost of the organization, each chapter's money is used almost entirely to further the VNPS mission.

Catherine Mayes, VNPS Treasurer

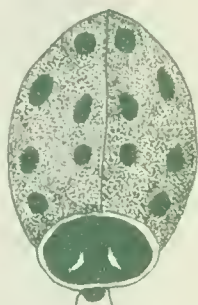
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Ladybug Line-up



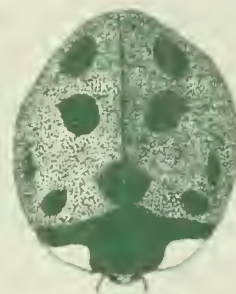
Spotted pink
(*Coleomegilla maculata*)



Thirteen-spotted convergent
(*Hippodamia convergens*)



Two-spotted
(*Adalia bipunctata*)



Nine-spotted
(*Coccinella novemnotata*)



Parenthesis
(*Hippodamia parenthesis*)

The Natives



Checkerspot
(*Propylea quatuordecimpunctata*)



Multicolor Asian
(*Harmonia axyridis*)



Seven-spotted
(*Coccinella septempunctata*)

The Non-natives

Ladybug illustrations by Nicky Staunton

•Ladybugs

(Continued from page 1)

the nine-spotted ladybug (*Coccinella novemnotata*), the transverse ladybug (*Coccinella transversoguttata*) (not illustrated) and the two-spotted ladybug (*Adalia bipunctata*). As you might have guessed, the beetles are named for the number and positioning of spots across their backs. The nine-spotted has four spots on each side and one in the middle; the transverse has markings that look like a band close to the front; and the two-spotted is very bright red with a dark spot on each wing.

When you do your ladybug search, you might also run into three natives that are still fairly common: the 13-spotted convergent ladybug (*Hippodamia convergens*) that has two converging white lines on its neck shield; the spotted pink ladybug (*Coleomegilla maculata*) that is more oval shaped with no white; and the parenthesis ladybug (*Hippodamia parenthesis*) named for the pair of parenthesis marks on its back.

Undoubtedly when you search for ladybugs you will find some introduced species and the Lost Ladybug volunteers want to know about those finds as well. The most common introduced species are the multicolored Asian ladybugs (*Harmonia axyridis*), which is a very large and round ladybug introduced from Japan to help control other insects. Unfortunately these voracious eaters munch on the same food as many native ladybugs and sometimes eat other ladybug larvae. We all know these beetles from their annoying habit of clustering inside houses by the hundreds in the winter.

Another non-native is the checkerspot ladybug (*Propylea quatuordecimpunctata*) that has a yellow and black checkerboard pattern on its back. And, finally, there is the seven-spotted ladybug (*Coccinella septempunctata*) that looks like the native nine-spot but is missing one spot on each wing.

Although these fascinating insects are called "bugs" they are really in the Coccinellidae family of the beetle order, Coleoptera. Beetles are unique because

they undergo complete metamorphosis and their forewings harden into a protective cover. True bugs belong to the order Hemiptera and include squash bugs, boxelder bugs, and plant bugs.

The bold, bright colors of the ladybug are meant as a warning of a not-so-tasty meal. They exude a distasteful fluid that repels many would-be-predators such as birds and reptiles. However, a few insects like assassin bugs and stink bugs as well as toads and spiders are not averse to dining on a ladybug.

Here is an interesting fact about this tiny little insect. Legend has it that this "red-robed" beetle got its name in medieval Europe because the farmers believed the beetles were sent by the Virgin Mary ("Our Lady") to protect their crops from insect damage. Whether or not there was divine intervention, most species of this beetle are predatory insect feeders and help control aphids and scale insects including mealybugs. Many ladybugs supplement their insect diet with pollen.

The ladybug project needs field

(See *Finding ladybugs*, page 8)



Virginia Native Plant Society 2010 Annual Meeting

September 10-12, Shenandoah National Park

"Our Mountain Roots"



The 2010 Annual Meeting will focus on the plant communities of this great national park, as well as on its cultural history. The Piedmont Chapter will host the event at Skyland Resort inside the park, offering field trips to natural areas that are significant for flora, including ferns and lichens, as well as geology. Other featured outings will highlight the intriguing history of people living here in earlier times. Shenandoah Park's scenic grandeur will surround participants at all times as they meet and move about. Participants will be welcomed Friday evening at Skyland, with dinner and a talk by park botanist Wendy Cass on protection of the park's valuable native plant communities. Saturday, after a buffet breakfast, field trips will depart for a full day of experiences in the park, guided by an array of leaders with knowledge of the areas they will cover. In the evening, VNPS President Sally Anderson will call the membership together for its annual business meeting, which includes election of officers and board members. Following dinner, the keynote address will be given by Gary Fleming, Program Vegetation Ecologist for the Virginia Natural Heritage Program. Field trips will continue through Sunday morning. Piedmont Chapter looks forward to welcoming fellow members from across the state, and encourages you to share this Shenandoah mountains experience.

Accommodations

A block of double rooms for a 2-night stay has been reserved at Skyland Resort. Guest rooms are in multi-unit lodges, each with 2 double beds and huge, west-facing views. All rooms are non-smoking. A limited number of pet-friendly rooms are available. Book on-line at www.visitshenandoah.com/groups, using our booking code # **2E83O7**. Or call (800) 999-4714 and use the same code. American Express, MasterCard, VISA, and Discover cards accepted. The deadline for room reservations is Monday, August 9. **Cancellations at least 72 hours in advance** will be refunded less a \$15 cancellation fee. Registration will be most efficient if two people who intend to share a room register at the same time using one credit card.

****In addition to Skyland Resort, there is a more modern lodge at Big Meadows as well as outdoor camping facilities and cabins in the park. For information about these alternatives, visit www.visitshenandoah.com/accommodations. Less expensive hotels are also available in nearby Front Royal. See www.shenvalley.com.**

Directions to Skyland Resort

Shenandoah National Park stretches 105 miles from its northern entrance at Front Royal to its southern entrance near Waynesboro. There are four entrances located at: Front Royal, accessible via I-66 and Rt. 340; Thornton Gap, accessible via Route 211; Swift Run Gap, accessible via Route 33; and Rockfish Gap, accessible via I-64. Rockfish Gap is also the northern entrance to the Blue Ridge Parkway. Use the mileposts on the west side of Skyline Drive to help you find park facilities, services, and areas of interest. Skyland Resort is located in the Central Section between Thornton Gap and Swift Run Gap at Mile 41.7.

Friday schedule

3-7 p.m. – Registration

6-7 p.m. – Reception and social hour (cash bar) at Conference Hall.

6:30-7:30 p.m. – Grilled supper at the Conference Hall, outdoors weather permitting (included in 2-night stay at Skyland)

7:30 p.m. - Greetings

8:00 p.m. - Speaker: Park botanist Wendy Cass will describe efforts to preserve the natural treasures of Shenandoah National Park. Ms. Cass has been the botanist at Shenandoah National Park since 1997. She manages the park's long-term forest monitoring program, and works to monitor and protect rare plant species and communities throughout the park. She has studied the nutrient storage capacity of streamside vegetation, the bio-control of purple loosestrife, and the effects of catastrophic wind disturbance on forest regeneration. Ms. Cass received her B.S. in science from Oberlin College and a Masters Degree in botany from the University of Vermont.

Saturday Field Trips

**Trips are limited to 20 participants unless otherwise noted.*

SATURDAY MORNING

1. **Nature photography (wildflowers)** *Easy*. A digital photography workshop in the field, beginners to advanced. We will concentrate on macro (wildflower) photography. We will begin with a PowerPoint presentation on nature photography before the hike to show participants what to expect. Led by professional photographers and professors at Lord Fairfax Community College, Rob and Ann Simpson. In 2007 they published a photography book of the park, *Shenandoah Simply Beautiful*.

2. **Big Meadows Swamp and Big Meadows** Limit 30 (divided into 3 groups) *Moderate*. Explore the southern and eastern sides of this very sensitive and extremely rare wetland plant community. Big Meadows swamp is one of two known examples of the park's endemic and globally rare Northern Blue Ridge Mafic Fen plant community. It is rich in rare plants and interesting wetland species. We will cover rare plants, invasive species threat, and response of the swamp community to exclosures installed in 2006. Then we will cross Skyline Drive to Big Meadows to explore this globally rare, high-elevation, wetland meadow and examine the effects of the park's 10-year program of prescribed burning. From showy asters to tiny Indian tobacco, the Big Meadows area has a wide range of wildflowers. Led by Shenandoah NP Botanist Wendy Cass, and Park Rangers Sue Schaefer and Mara Meisel.

3. **Passamaquoddy-Stony Man (geology)** *Moderate*. We will follow trails around and up Stonyman Mountain and look at features of the Catoctin Formation beautifully demonstrated on the path. The leader will point out significant and unique flora of the High Elevation Greenstone Barrens along the way. Led by Chip Morgan, of the Wintergreen Nature Foundation and a board member for the Flora of Virginia Project.

4. **Panorama to Marys Rock** *Difficult*. 3.7 miles with 1,200 feet of climb on rough trails. Starting from the historic Panorama area, this field trip will hike along the Appalachian Trail through reclaimed forest and mountain laurel thickets, to the summit of Mary's Rock at 3,515 feet. Along the way we will look at how the forest has regenerated and changed, learn tools for identifying trees, and enjoy the spectacular views from Marys Rock. Led by Jack Price, Virginia Master Naturalist and President, Shenandoah National Park Association.

5. **Historic Rapidan Camp** *Easy*. Limit 12. Travel by van 30 minutes to President Hoover's summer retreat. Visit the authentically refurnished President's cabin with a ranger, then explore the landscape and self-guided exhibits. Travel 30 minutes back to the Byrd Visitor Center. Led by a Shenandoah National Park Ranger.

SATURDAY AFTERNOON

6. **Volcanism and Virginia's "Great Unconformity: Passamaquoddy-Stony Man Geology"** *Moderate*. About 3 miles. Excellent vistas enhance viewing the geology of the Skyland area. After seeing excellent exposures of volcanic rocks dating to about 600 million years ago, including gigantic columns in a thick lava flow and a rare exposure of rocks surrounding a vent near the hike's end, we will reach deeply eroded granitic rocks about 1,200 million years old that formed the deeply eroded terrain onto which the lavas flowed. The contact between the lava flows and granitic rocks is not quite as great a break in time as the "Great Unconformity" near base of the Grand Canyon, but is still remarkable. Led by Bill Melson, Geologist, Smithsonian Institution.

7. **Hawksbill** *Moderate*. With its summit at 4,160 feet, Hawksbill is the highest mountain in Shenandoah National Park. We will explore the ecological effects of higher elevations on plant species on both flanks of the mountain slopes, as well as the Hawksbill Gap area just to the north and should see a host of rare and unusual plant species. The hike will involve approximately 3.8 miles over rough, rocky trails and a short stretch of fairly easy, off-trail walking. Boots or sturdy shoes and long pants required. Led by Gary Fleming, vegetation ecologist with the Virginia Natural Heritage Program and president of the Virginia Botanical Associates. He has studied the high-elevation vegetation of Hawksbill for more than 20 years. Johnny Townsend, staff botanist with the Virginia Natural Heritage Program, author of the soon-to-be-completed *Flora of Virginia*, has extensive, state-wide field experience and has discovered numerous species new to Virginia.

8. **Big Meadows Cultural History** *Moderate*. Jack Reeder and his wife have been bushwhacking [hiking without benefit of trails] since the '60s, seeking out remnants of folk who formerly lived in what is now the SNP. We will see vestiges of their homes and farms and hear about how they lived, where they were from, and what became of them. The Big Meadows area includes several sites where people had their homes, and Jack will tell some of the history that occurred on the meadow and what to look for in finding these forgotten treasures. Brief short bushwhacks to various sites in and near the meadow required. Led by Jack Reeder, past-president of the Potomac Appalachian Trail Club and author of *Shenandoah Secrets: the Story of the Park's Hidden Past*.

9. **Nature photography (scenery)** *Easy*. A digital photography workshop in the field. Beginners to advanced. We will concentrate on photographing scenery. We will begin with a PowerPoint presentation on nature photography before the hike to show participants what to expect. Led by professional photographers Rob and Ann Simpson. (See trip #1)

10. **Miller's Head** *Moderate*. Limit 15. Explore a lovely trail on the edge of the Skyland area. We will follow the trail along the forested crest of the ridge to its terminus at the Miller's Head observation platform with its gorgeous views of Kettle canyon. This 2-mile round trip covers 500 feet of elevation change in each direction, and will include an exploration of the globally imperiled Central Appalachian Mafic Barren plant community (Ninebark/Pennsylvania Sedge Type) on the rock outcrop at the terminus of the trail. Led by Wendy Cass, Botanist, Shenandoah National Park.

11. Limberlost Trail *Easy*. (level, hard-surfaced trail) We see a new forest being born in the Limberlost, once home of the largest stand of virgin hemlock trees in the park. Some of the aged giants were more than 250 years old and 3 feet in diameter before the devastating effects of tropical storms, hurricanes and invasive insects. Today, the former hemlock grove is a model of plant succession. Focus will be on cultural history and natural history, along with a discussion of mountain residents prior to the Park formation. *Led* by Potomac Appalachian Trail Club Naturalist Bob Pickett.

12. Ferns on an Old Forest Floor *Moderate*. The focus of this field trip will be related to the life histories of some of our most common ferns and how to id them. Participants may be surprised at the age associated with individual fern plants as Coleman shares some recent findings by research work currently conducted by scientists working at the Wintergreen Nature Foundation. *Led* by Doug Coleman, Field Biologist and Executive Director, the Wintergreen Nature Foundation.

SATURDAY ALL DAY

13. Rapidan Camp Loop *Difficult*. 7.5 miles with 1,500 feet of climb on rough trails. Walk south from Milam Gap along the Appalachian Trail lined with fall flowers and remnants of Turks Cap Lilies. Then turn down hill on the Laurel Prong Trail. Many fungi should be showing in the wet areas along Laurel Prong. After seeing the buildings at President Hoover's camp where Laurel Prong joins Mill Prong to form the Rapidan River, we will climb back up to Milam Gap along Mill Prong, crossing it just below Big Rock Falls. *Led* by Richard Stromberg, Virginia Master Naturalist.

14. Lewis Springs *Moderate*. 1.5 miles with 400 feet of climb. We will specialize in ferns (this is a good spot for them), but we also will talk about the forest history of the area, look at several uncommon shrubs (leatherwood and Canada honeysuckle), and see at least a few wildflowers possibly some white monkshood will still be blooming. *Led* by Tom Dierauf, retired forester and regular hike leader in Shenandoah National Park.

15. Skyline Car Safari *Easy*. In the morning, we will meander north with stops to view interesting overlooks and visit floral inhabitants of Shenandoah National Park. We return for lunch at Skyland and then meander south for the afternoon. Expect to see the pale lavender native stiff gentian (*Gentianella quinquefolia*); witch hazel (*Hamamelis virginiana*) in bloom; beautiful whorls of the silky hairs of virgin's bower (*Clematis virginiana*) in seed; and a variety of milkweed seed pods, especially *Asclepias exalta* that prefers mountain habitat. Early colors of autumn will be visible with *Parthenocissus quinquefolia*, as Virginia creeper's scarlet leaves cling to the mountains' rocks. Hogback Overlook's *Sorbus Americana*, American mountain-ash, with red fruit and changing leaves will be waiting to be admired. Also, at that location is *Acer spicatum*, Mountain maple. We'll overlook Old Rag Mountain and the Shenandoah River and many other beautiful sights. *Led* by Nicky Staunton, past president of VNPS, natural science illustrator, board member, Flora of Virginia Project.

SUNDAY MORNING (ADDITIONAL HIKES MAY BE ADDED)

16. Limberlost Trail *Easy* (handicapped-accessible). See Description #11. *Led* by Park Ranger Mara Meisel.

17. Big Meadows *Moderate*. From showy asters to tiny Indian tobacco and an occasional spiranthes, the Big Meadows area welcomes a wide range of wildflowers. Sweet fern (*Myricaceae* family) is there. Explore this globally rare, high-elevation wetland meadow and examine the effects of the park's 10-year program of prescribed burning. *Led* by Marion Lobstein, Professor of Biology, Northern Virginia Community College.

18. Visit to Bruce and Susan Jones' Farm Tour 180 acres of a spectacular private farm managed for biodiversity, stressing native plants and wildlife, with focus on warm season grass fields, pond edge, pollinators and bird habitat. Visitors can learn of management practices such as prescribed burns and invasives control. The site is at some distance from Skyland Lodge, near the town of Little Washington, off Rt. 211, so is suggested as a tour for those checked out and headed home in their own vehicles. Numbers not limited, but registration is required. Hosted and led by owners Bruce and Susan Jones.

Saturday Schedule

7 a.m. – Meet in conference center for buffet breakfast

8:30 a.m. – 4:30 p.m. Field Trips

5:30 – 6:30 p.m. Social hour and cash bar in Conference Center

6:30 – 7:30 p.m. Buffet Dinner

7:30 p.m. – Annual Business Meeting

8:00 p.m. – Keynote Speaker

"Natural Community And Plant Species Diversity Of Shenandoah National Park And The Northern Virginia Blue Ridge" Gary Fleming is a vegetation ecologist with the Virginia Natural Heritage Program and President of the Virginia Botanical Associates. His work in Shenandoah National Park includes a multi-disciplinary Natural Heritage inventory (1989-1991), two iterations of vegetation mapping (2001-2008), the Rock Outcrop Management Plan project (ROMP, 2005-2007), and extensive independent research on the composition and environmental dynamics of the park's vegetation. In addition to his in-depth knowledge of the Park's flora, Gary is an acclaimed photographer whose presentations are not to be missed.

Registration Form
"Our Mountain Roots in Shenandoah National Park"

Virginia Native Plant Society 2010 Annual Meeting
September 10-12, Skyland Resort

VNPS Registration Fee: \$99 to VNPS (Covers attendance at all events, including hikes and speakers; Saturday box lunch; Saturday evening banquet) **Registration opens immediately.**

Additional fees: Accommodations at Skyland Resort: \$194 (double) or (\$334 (single).

This covers: • 2 nights lodging • Dinner Friday evening • Breakfast Saturday and Sunday
Pay online at www.visitshenandoah.com/groups using booking code #2E8307 or call 1-800-999-4714.

****The following costs are not included in either fee: • Admission to Shenandoah National Park • Drinks. We will have a cash bar with wine and beer**

Name _____ Phone Number _____

Second person in your party _____

Street _____ City, State, Zip _____

Email _____ (2nd person's)

Signature* _____ (required) Signature* _____ (required)

*Signatures required on all registrations. By signing this form the above registrant shall hold harmless the Virginia Native Plant Society, including its staff and volunteers and those designated to serve as their provider.

* * * * *

Registration closes Thursday, August 26. Registration prior to August 9 ensures \$194 advertised room rate. Later registrants cannot be offered group meals or box lunches, although Skyland Resort will be available for independent dining. Please register early as space is limited.

Number attending: _____ VNPS Members _____ General Public
_____ Total

Enclosed registration fees # _____ x \$99 (All events, hikes, speakers, Saturday box lunch, banquet)

****Skyland accommodations: \$194 (double), \$334 (single) (includes 2 nights' lodging, Friday dinner; Saturday & Sunday breakfasts) PAY DIRECTLY TO SKYLAND**

Please note: All field trips are limited to 20 participants unless otherwise stated. Please see each walk for details. You may do a Saturday a.m. walk and a p.m. walk. If registering for more than one person, put the number of people under each choice. In case of rain, special programs will be offered in the conference hall.

Saturday a.m. Field Trips:

1st choice ____
2nd choice ____

Saturday p.m. Field Trips:

1st choice ____
2nd choice ____

Saturday All Day Field Trips:

1st choice ____
2nd choice ____

Sunday Field Trips:

1st choice ____
2nd choice ____

For more information
Contact VNPS office
manager Karen York at
540-837-1600
or vnpsoc@shentel.net

Saturday box lunches: deli-cut ham ____ roasted turkey ____ roast beef ____ grilled veggie wrap ____ p.butter & jelly ____
lunch notes (vegan, allergies, etc.) _____

Want to pay by credit card? Circle one Discover, Mastercard, Visa

Card number _____ Exp. date _____ Security Code _____

Printed name _____

Signature _____

Mail this form (with check payable to VNPS or credit card information) to:
VNPS Annual Meeting, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

Native plant symposium offers valuable information

Attending conferences, symposiums, and workshops is often inspirational. Wonderful sources of new information are revealed and we are reminded of things forgotten. Another advantage is gaining resources for learning more about the themes addressed at the meetings. The speakers at the 2010 Lahr Native Plant Symposium at the National Arboretum provided all these aspects.

Landscape architect Darrel Morrison spoke on the topic of "Where Art and Ecology Meet." He began by telling the audience about those who influenced his architectural style. Jens Jensen, the Chicago based Prairie Style landscape architect, introduced him to the mystery created by curving lines in the landscape of Columbus Park designed in 1916-18. Jensen's design was inspired by the park's natural history and topography. Edith Roberts and Elsa Rehmann wrote *American Plants for American Gardens*, which is an excellent resource for information on planting in ecological associations. Steve and Rachel Kaplan of the University of Michigan taught him about the effect of the natural environment on humans through their book *With People in Mind: Design and Management of Everyday Nature*.

Speaker Kim Winter of the National Wildlife Federation Habitats Programs explained "Gardens in Partnership with Biodiversity: How to Attract and Sustain Animal Populations." She spoke of the important roles insects play in the environment and referred to two books: *Insects and Gardens: In Pursuit of a Garden Ecology* by Eric Grissell and *Insects and Wildlife* by John Capinera. Pollination is an important function of insects. More information on pollinators and the plants that attract them can be found in online Ecoregional Planting Guides at www.pollinator.org.

Scientific names are important in the botanical world. As we all know, many of these names have been changing in recent years. Speaker Alan Whittemore, taxonomist at the National Arboretum, explained this in his talk "Why Can't They Decide

What to Call this Plant?" Name changes in genera are occurring due to advances in genetics and chemistry. These changes are not occurring with species names because the DNA sequencing is too close to tell a difference. Whittemore states that this will gradually change as the science evolves. As scientists make discoveries through DNA, they propose name changes to the Botanical Congress, which decides how to apply plant names based on the International Code of Botanical Nomenclature. The Code was created in 1960 and was applied to plants discovered and named going back to the 1700s. In 2010, the Botanical Congress will look at rejecting the name *Quercus prinus* because all current *Q. prinus* are one of two plants—*Quercus montana* or *Quercus michauxii*—with the difference between the two being noted by the bark and acorns. Alan Whittemore suggests referring to the following websites for the most up-to-date information: Flora of North America at www.efloras.org, GRIN database at www.ars-grin.gov for economic plants, and the United States Department of Agriculture plants database at <http://plants.usda.gov>.

Bill Cullina, Plant and Garden Curator at the Coastal Maine Botanical Gar-

•Flora project

(Continued from page 2)

indeed anticipating the publication of the *Flora*.

"I'm a member of VNPS myself, and when I received Sally Anderson's letter soliciting donations to the Flora Project this year, it occurred to me that MNPS might offer support," said Kirsten Johnson, MNPS president. "It took no persuasion whatsoever at the board meeting. The discussion was short, and the vote unanimous." Members of the two groups attend each other's conferences and workshops, and "most of us travel the short distance into Virginia several times a year for botanizing," she said. The societies were co-plaintiffs in a lawsuit concerning development proposed for Fort Dupont Park in Washington, she said.

Maryland has a flora (separate volumes on woody and herbaceous plants, by Brown and Brown), but it's out of print now and expensive when avail-

den (formerly the nursery director at the New England Wild Flower Society) spoke about "Botany by Design." He highlighted a few principles of landscape design like planting in drifts by clumping a number of the same plant together for impact. For interest, he reminded everyone to consider plant texture over flower color. He suggested taking a photo and removing the color to see if you have planted different textures. Cullina also spoke of some interesting plant characteristics. Fuzzy leaves slow water loss and reflect light to help keep the plant cool. A chemical called anthocyanin gives leaves red coloration that masks chlorophyll and offers frost protection in spring. Bill Cullina's new book, *Understanding Perennials*, covers these subjects and many more.

The speakers at the 2010 Lahr Native Plant Symposium were inspirational, engaging, and knowledgeable. The references provided for additional information were invaluable. They will provide a never-ending source of information for learning more about your favorite plant subjects.

Kim Strader, VNPS Horticulture Chair

able. "There is no question that the *Flora of Virginia* will be an important reference tool for Maryland botanists, as I would expect it to be for other neighboring states," Johnson said.

Thank you also to each VNPSer who sent a gift for the Flora of Virginia Project, the designee of the 2010 fundraising letter. Your generous donations of \$13,190 will help support the last two years of preparation for publication in 2012. If you would like to join in reaching our VNPS goal of donating \$20,000 toward the *Flora*, please send your gift to VNPS Fundraising 2010, 400 Blandy Farm Lane, Unite 2, Boyce VA 22620.

Thanks to Dominion, the Maryland Native Plant Society, the Virginia Native Plant Society, and the many other groups and individuals supporting the *Flora of Virginia*. Everybody's behind this important project!

Bland Crowder, Associate Director

Flora of Virginia Project

Habitat key to quail return

(Continued from page 1)

of species may be key to the recovery of quail and other species of wildlife.

Throughout its range, the quail eats seeds and parts of hundreds of different plant species. Considered a granivorous bird, a quail's diet consists of about 70 percent seeds, 15 percent insects, and 10 percent green vegetation with the rest being miscellaneous items. These percentages fluctuate as the seasons change (i.e., breeding and nesting) and as availability of food items changes. While agricultural food items, such as corn, can be important to quail, native plants provide a greater variety of foods, support a more diverse suite of insects, and offer better habitat components like nesting and cover.

Even though quail eat from so many different species of plants, they often show preferences for certain plants. They tend to consume seeds with hard seed coats. Depending on availability, seeds of forbs usually make up most of the seed component, while grass seeds and seeds from shrubs and trees round out their seed diet. The genera of grasses and related plants that quail most often eat seeds from are *Panicum*, *Paspalum*, *Setaria*, *Urochloa*, and *Scleria*. Most of the bunchgrasses that provide excellent nesting for quail, like the bluestems (*Andropogon* spp.), have seeds that are rarely eaten by quail.

Seeds from the legume family (Fabaceae) are some of the most highly preferred by quail in the Southeast. Many landowners are familiar with partridge pea (*Chamaecrista fasciculata* and *C. nictitans*) that produce yellow flowers and abundant seed during the fall. Other native species in this family that are eaten by quail include wildbean (*Strophostyles* spp.), spurred butterfly pea (*Centrosema virginianum*), and milkpea (*Galactia* spp.). These species are creeping or twining vines that can produce large patches of showy white, pink, or purple flowers. The sticktights or beggarlice (*Desmodium* spp.) that get stuck to people's clothing are also good seeds for quail with several native species in this genus. While there are sev-

eral species of introduced lespedezas, including *Lespedeza cuneata* and *L. bicolor*, there are also several species of native lespedezas that produce quality seed. Some of these found in Virginia include *L. capitata*, *L. hirta*, *L. procumbens*, and *L. repens*. A few other native plants in this family that are beneficial to quail are snoutbean (*Rhynchosia* spp.), pencilflower (*Stylosanthes biflora*), and American hogpeanut (*Amphicarpaea bracteata*).

Several of the more preferred native forb seeds from families other than Fabaceae that occur in Virginia are sunflowers (*Helianthus* spp.), ragweeds (*Ambrosia* spp.), violets (*Viola* spp.), smartweeds (*Polygonum* spp.), nightshades (*Solanum* spp.), northern croton (*Croton glandulosus*), geranium (*Geranium carolinianum*), and poor-joe (*Diodia teres*). Many of these plants are often considered weeds and can be found in and around agricultural fields. The small seeds from woodsorrel (*Oxalis* spp.) are often eaten by quail as are the succulent leaves. Other lesser-used native forbs eaten by quail are touch-me-nots (*Impatiens* spp.), bluecurls (*Trichostema* spp.), morning-glories (*Ipomoea* spp.),



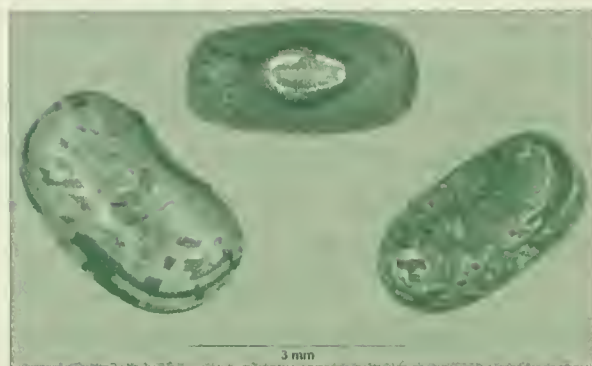
Quail illustration by Spike Knuth

camphorweed (*Heterotheca subaxillaris*), and spurges (*Euphorbia* spp.).

Subshrubs, shrubs, and trees can provide food for quail as well as good cover. Shrubby thickets and some hardwood saplings often provide the best protective cover for quail. Some of the native shrubby plants that supply seeds for quail are blackberries (*Rubus* spp.), huckleberries (*Gaylussacia* spp.), waxmyrtle (*Morella cerifera*), American beautyberry (*Callicarpa americana*), and sumac (*Rhus* spp.). Native woody vines valuable to quail as seed producers are poison-ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), and several species of wild grapes (*Vitis* spp.). Oaks (*Quercus* spp.) that produce smaller acorns can be important to quail especially as the colder months approach. Pines (*Pinus* spp.) are among the most consumed and important seeds for quail in the Southeast. Sweetgum (*Liquidambar styraciflua*), black locust (*Robinia pseudoacacia*), flowering dogwood (*Cornus florida*), sassafras (*Sassafras albidum*), hollies (*Ilex* spp.), and some fruit trees (*Prunus* spp.) are also significant native seed producers for quail.

The list of native quail foods could go on and on. While quail are generalists according to the foods they eat, their need for early-successional plant structure seems to be the more important. Rarely is food a limiting factor for quail populations in the southeast. For people

(See Quail, page 8)



Native plant species eaten by quail include spurred butterfly pea (*Centrosema virginianum*), the flower and seeds of which are seen above. Photos are from author Drew Larson's book on wild quail management.

•Rain garden

(Continued from page 3)

planted just hours before December's blizzard, and then added to with plant donations in April and May now includes sundrops, ironweed, cone-flower, big bluestem, redbud, blue lobelia, sassafras, switchgrass, and buttonbush. And, as of early April, the big ugly non-functioning retention basin next to the post office is a fully functioning bioretention area, commonly called a rain garden. Both the rain garden and bioswale were planted by Riverheads High School ecology and environmental science students. The rain garden includes wild geranium, rudbeckia, goldenrod, aster, coreopsis, Joe-pye weed, river oats, creeping phlox, itea, silky dogwood, high bush cranberry, and elderberry.

The work has turned an unsightly stormwater basin into a nicely landscaped area that will enhance the village entrance, will better address the drainage issues in the area, and will clean the stormwater runoff of pollutants coming off the mall roof and parking lot before sending it back into the South River.

After a few spring rains, the group working on the project noticed that rainwater was sheeting off the parking lot and cutting trenches through

the bioswale. A decision was made to work with Mother Nature to correct this problem. The students went to work creating a rock-lined feature through the bioswale lined with about 10 tons of tan river rock.

The most exciting part of the project is the community partnership. Most of the in-kind cost was "paid for" by the students. Over the course of the last two-and-a-half years, 18 different classes of students participated in one aspect of the project or another. Earlier classes saw the project at the beginning and learned about stormwater management and water quality. Classes last year learned from the local landscaping company how to pot up plants and prepare them for winter. They also had class discussions on the importance of native plants.

Last fall as construction work on the project got under way, Sorrells began locating appropriate native species to plant in the bioswale and rain garden. At least 10 people helped find and donate hundreds of plants. Heavy consultation with the Upper James River Chapter's Peggy Dyson-Cobb, Katherine Smith, and the Wintergreen Nature Foundation's Doug Coleman helped decide on just the right species for the wettest parts of the project (down in the basin and along the

bioswale rock feature) and the driest parts (along the banks and in the remaining bioswale). Most of the plants came from the Rockbridge, Augusta, and Rockingham areas, as the Shenandoah Chapter was also very involved in donating to the project. Some native grasses came from as far away as Reva!

For Augusta County, the project will help showcase forward-thinking low impact development techniques. As the county updates its ordinances to include more environmentally sensitive ways of handling stormwater management, this project will serve as a model for how to better address water quality and storm run-off practices.

A sign describing the rain garden and the importance of native plants in this project and thanking sponsors (including VNPS) has been erected on the bank of the rain garden. Making that sign possible were several VNPS members who donated appropriate photographs. It is anticipated that more fill plants might be needed to fill in some spaces until the plants are well established in a few years. If you have plants that you would like to donate, please let Nancy Sorrells know at lotswife@comcast.net or 540-377-6390.

Nancy Sorrells, VNPS Bulletin editor

See the address label for your membership expiration date

VNPS Membership/Renewal Form

Name(s) _____

Address _____

City _____ State _____ Zip _____

___ Individual \$30

___ Student \$15

___ Family \$40

___ Associate (groups) \$40*

___ Patron \$50

___ Sustaining \$100

___ Life \$500

*Please designate one person as delegate for Associate membership

To give a gift membership or join additional chapters: Enclose dues, name, address, and chapter (non-voting memberships in any other than your primary chapter are \$5)

I wish to make an additional contribution to ___ VNPS or _____ Chapter in the amount of ___ \$10 ___ \$25 ___ \$50 ___ \$100 ___ \$(Other) _____

___ Check if you do not wish your name to be exchanged with similar organizations

___ Check if you do not wish your name to be listed in a chapter directory

Which chapter do you wish to join? (See www.vnps.org) _____

Paying by credit card? ___ MC ___ Visa ___ Discover Exp. date _____

Card # _____ Security code _____ Signature _____

Make check payable to VNPS and mail to:

VNPS Membership Chair, Blandy Experimental Farm, 400 Blandy Farm Lane, Unit 2, Boyce, VA 22620

Membership dues are tax deductible in the amount they exceed \$5. Contributions are tax deductible in accordance with IRS regulations.

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Nancy Sorrells, Editor

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Our Mountain Roots

2010 Annual Meeting plans take shape

What makes a fen? Who once lived in these wild mountains? What plants can be found at 4,050 feet? As plans fall into place for the VNPS annual meeting in Shenandoah National Park, September 10-12, members of the Piedmont Chapter have assembled an impressive weekend package. The meeting site, Skyland Resort with its awesome views, will be the gathering place as members share meals and featured events.

As for field trips, arguably the main draw for a large number of members, opportunities include various special natural areas in this fabulous park such as Hawksbill Mountain, the Limberlost Trail, the Big Meadows Swamp and others, all to be experienced under the guidance of experts who know these places best. Gary Fleming, Wendy Cass, Marion Lobstein, John Townsend, Richard Stromberg, Bob Pickett, Doug Coleman and others will lead the outings. Botanical treasures, geology, and cultural history are all part of the mix. Offerings will include vigorous hikes for the fit and ambitious, along with gentle outings, including a car safari.

During Saturday evening's events, VNPS President Sally Anderson will call the membership together for its brief annual business meeting, which includes election of officers and board members. Dinner speakers are Park botanist Wendy Cass and Virginia Natural Heritage Program Vegetation Ecologist Gary Fleming (Friday and Saturday nights respectively).

Check out the registration form in this *Bulletin* and get on board today. You will not want to miss out.

•Finding ladybugs

(Continued from page 4)

volunteers to help document these beetles, both native and non-native, across the nation. Volunteers should go out and collect and document the ladybugs. Photograph each beetle, and note the date, time, location, and habitat including the exact plant they were found on if possible. Then release the ladybugs safely to the wild and send your information and digital image to www.lostladybug.org.

The website offers tips on how to safely capture ladybugs, identify them, and chill them slightly so you can slow them down enough to photograph them. Ladybugs are most active between May and October so get out there and look. Whatever you find will add to the knowledge of these painted ladies and the habitats they call home.

Nancy Sorrells, VNPS Bulletin editor

•Quail

(Continued from page 6)

looking to improve their land for quail and other early-successional wildlife, management practices such as prescribed burning and disking can often stimulate native plants useful to quail.

Unfortunately, invasive exotics may respond positively to these practices too and should be monitored. At present, there are not many commercially available species or sources of quality native seeds beneficial to the bobwhite quail. Perhaps in the future, managers and re-

source conservationists will have access to more quality native plants or their seeds to promote the habitats that the bobwhite and other wildlife need.

Drew Larson, District Wildlife Biologist
Va. Department of Game and Inland Fisheries

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Bulletin

A publication of the VIRGINIA NATIVE PLANT SOCIETY
Conserving wild flowers and wild places

www.vnps.org

BRIT Press will publish *Flora of Virginia*

It's official! The BRIT Press will be the publisher of the *Flora of Virginia*.

The *Flora of Virginia* Project and the publishing arm of the Botanical Research Institute of Texas, in Fort Worth, signed an agreement in July that moves the creation of the *Flora* a giant step forward. Publication is set for late 2012.

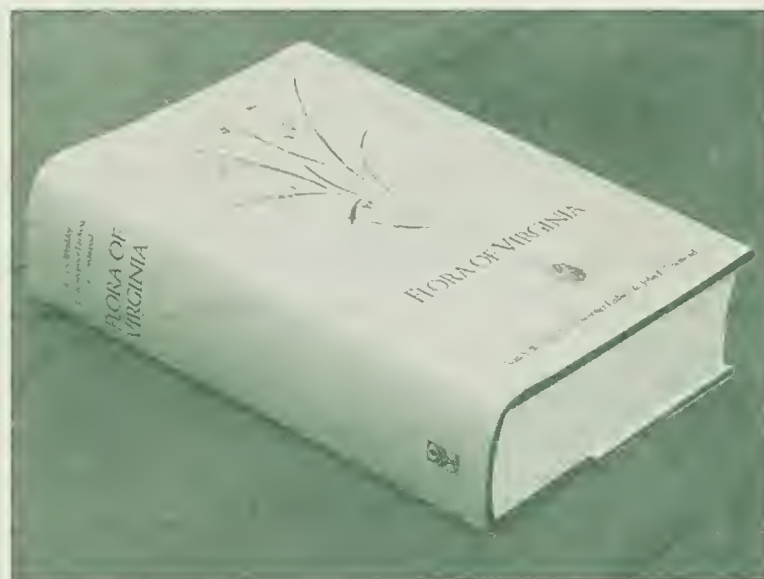
"The BRIT Press is delighted to be working with the *Flora of Virginia* Project in publishing this remarkable flora," said Barney Lipscomb, Dorothea Leonhardt Chair of Texas Botany with BRIT and head of the BRIT Press. "The *Flora of Virginia* is a 21st-century flora that will present critical information about the plant life of Virginia and surrounding states."

The *Flora* will be the most modern single-volume flora for our region and will reflect the latest advances in genetics and thought in plant biosystematics. It will be the first statewide plant manual for Virginia since *Flora Virginica* in 1762.

"We are very happy to have a publisher—but we're especially happy that it's the BRIT Press," said

Chris Ludwig, director of the *Flora of Virginia* Project and a co-author of the *Flora of Virginia*. "This is such a good match, and that has been clear since our first conversations over a year ago." In April, Ludwig visited BRIT and met with Lipscomb, after which only a few details remained to be worked out.

BRIT's mission illustrates why the *Flora of Virginia* is in the right hands. As its website states, "BRIT is a global institute for the conservation and preservation of plant diversity through research, education, scientific publications, and collections." Its press reflects its commitment to botanical research through the worldwide distribution of books and journals. In addition to the semiannual *Journal of the Botanical Research Institute of Texas* (formerly *Sida*), the BRIT Press's editions include systematic monographs, botanical histories, and floras like Shinnery & Mahler's *Illustrated Flora*



A concept of the cover of the *Flora of Virginia*. Preliminary watercolor rendering of *Claytonia virginica* by Lara Call Gastinger. The BRIT Press logo may be seen on the spine.

of North Central Texas and the *Illustrated Flora of East Texas* of which Lipscomb is a co-author.

The *Flora of Virginia* will be some 1,400 pages long, describing more than 3,500 plant species native to or naturalized in Virginia, of which 1,400 will be illustrated with pen-and-ink drawings commissioned for the book. Final content review is under way, and copyediting will begin this fall. The final manuscript will be handed off to the BRIT Press at the beginning of 2012. There, the *Flora* will be designed, laid out, and prepared for the printer. The BRIT Press will also spearhead marketing efforts.

(See *Going to press*, page 8)



Let me tell you a thing or two
about removing invasives!
See page 6



From the president

Summer's diverse habitats bring comfort

It's the heat of summer, breeze swishing the leaves in the treetops, a few yellow ones drifting down with each gust, and the fountain is on so I can hear the sound of water.

*Recent trips to the mountains have shown again the amazing differences in habitat across the state. While plants here are in a summer lull, only a few Monardas and Rudbeckias for company, the roadsides in the mountains have diverse blooms, from columbines that finished here long ago on the Shenandoah Valley floor to late-summer flowers like the common milkweed (*Asclepias syriaca*) that haven't started yet. And there are high-elevation plants like Indian plantain (*Cacalia atriplicifolia*), poke milkweed (*Asclepias exaltata*) and fly poison (*Amianthium muscaetoxicum*). The summer is compressed into a shorter season, and thick clouds of bumblebees, butterflies and others are at their seasonal work.*

*Our late summer wave of bloom in the Valley is beginning though. The first red of *Lobelia cardinalis*, heads of Joe-pye weed (*Eupatorium* spp.), those curious buttons of the buttonbush (*Cephalanthus occidentalis*), and a few *Helianthus* have appeared recently.*

In this extremely hot summer, in spite of herbicided power lines and oily water, I am feeling lucky and grateful for the good things I have around me, and I'm hoping that VNPS can help to find a way to keep more of the land beautiful and healthy.

Your President, Sally Anderson

Visit forestry center, unique sand dunes with VNPS

Register now and join experts on back-to-back VNPS state field trips on Friday, October 1, and Saturday, October 2. Both trips run 10:30 a.m. to 3 p.m. On October 1, join retired William and Mary professor Donna Ware for an insider's visit to the New Kent Forestry Center (NKFC). The center celebrated its 50th anniversary in 2002, having produced more than 1.6 billion seedlings and received recognition as a

world premier forest nursery and research station. Located on more than 400 acres of mostly upland terrain along the Chickahominy River, NKFC is operated by the Virginia Department of Forestry. Its mission has always been the production of quality seedlings. During the morning portion of our visit, Lisa Deaton, forest education specialist, will describe current research at NKFC, which focuses on at

least 10 species in addition to loblolly pine, including American chestnut, Atlantic white cedar, longleaf pine, as well as native warm season grasses, and longleaf pine. She will also present information on the various plant communities represented on the site.

NKFC maintains a nature trail and boardwalk built by local Boy Scouts and Girl Scouts through a bald-

(See VNPS field trips on page 8)

VNPS 2010 State Field Trips

\$10 donation per trip. Please register with the VNPS Office at 400 Blandy Farm Lane #2, Boyce, VA 22620, vnpsofc@shentel.net or phone 540-837-1600.

October 1, 10:30 a.m.-3 p.m.

Walk the boardwalk through a swamp at what was formerly the New Kent Forestry Center near Providence Forge. Trip will be led by College of William and Mary botanist Donna Ware.

October 2, 10:30 a.m.-3 p.m.

See a 50-foot sand dune, many plant communities, and a beach that is home to rare northeastern beach tiger beetles at Savage Neck Dunes Natural Area Preserve. Led by Natural Heritage botanist Dot Field.

I would like to attend the following trips: ☐ \$10 New Kent Forestry Center ☐ \$10 Savage Neck Dunes

☐ TOTAL Enclose check with this information or call the office to register with credit card.

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Sword-leaved phlox

● VNPS support helps rediscover rare plant

As a result of a Virginia Native Plant Society-sponsored botanical survey, a globally rare plant is back on the maps in Virginia. Sword-leaved phlox was "rediscovered" after Department of Conservation and Recreation's Natural Heritage field botanist, Nancy VanAlstine, conducted surveys to relocate historical occurrences of the globally rare phlox (*Phlox buckleyi*, G2/S2), known only from western Virginia and eastern West Virginia.

This perennial herb, which blooms in May and June, is typically found in open shale woods, and has not been reported in 30 years. The 2010 survey effort in May and June focused on relocating occurrences in Craig, Wythe,

Pulaski and Rockbridge Counties. During the surveys in May and June, sword-leaved phlox was found in five of the nine historical locations where the plant was sought.

During the June survey, populations of the plant were relocated and more accurately mapped for three of the five occurrences, with one along a road in Craig County north of New Castle within the George Washington and Jefferson National Forests, one with two colonies along a road bank near Max Meadows in Wythe County, and one consisting of multiple colonies along a road within the national forest west of Pulaski.

Sword-leaved phlox was not found in two other sites: a Wythe

County location with probable increased road bank disturbances since the original discovery, and a Rockbridge County site that may have either been subject to habitat degradation since the original find or the description may have been misinterpreted. Additionally, during the June field work two small road-bank colonies were found beyond the previously documented locations, one in Pulaski County and one in Wythe County. The survey is part of a larger project, funded by the Virginia Native Plant Society, to relocate historical occurrences of rare plants around the state.

Reprinted from Virginia Natural Heritage E-News, Summer 2010

● June field trip opens eyes to forest dynamics

SIGEO and NEON—that's science, not alphabet soup

At our June outing to the Smithsonian Conservation Biology Institute (formerly the Conservation Research Center) we spent much of our time at the SIGEO Forest Dynamics Plot with our tour leader Norm Bourg, plant ecologist and ecological research programs manager. This acronym signifies the Smithsonian Institution Global Earth Observatory, and grew out of the tropical forest plots that have been studied by the Smithsonian's Center for Tropical Forest Science since the first plot was established on Barro Colorado Island, Panama, in 1980. This study grew into a network of about 30 plots worldwide, each 25 to 50 hectares (about 62-124 acres). According to the center's website, a common plot structure and scientific methodology unify the network. All free-standing trees with a diameter at breast height of at least 1 cm. (0.4 inches) are tagged, measured, identified to species, and recensused approximately every five years. Because each plot follows the

same methodology, scientists can directly compare data collected from different forests around the world and detect patterns that would otherwise be impossible to recognize.

SIGEO represents the addition of temperate forest plots to this network. The same scale and methodology are used. At the site south of Front Royal, Virginia, the 25-ha. plot established in 2008 sits at the intersection of Blue Ridge, Ridge and Valley, and Piedmont physiographic provinces and is covered in a mature second-growth mixed deciduous forest. Tree bands can be seen on many of the larger trees, and provide a precise measurement of growth. The initial inventory recorded 40,400 trees and shrubs of 65 species, plus 7 woody vine species. Several other types of ecological studies are ongoing, and volunteers can participate in some of these projects.

Included within the SIGEO plot is a 4-ha. (10-acre) deer exclosure. Although some deer occasionally visit the exclosure, they are soon

chased out. We found a fawn in the exclosure when we visited, and Norm told us that the mothers usually manage to come in after them. The fence does not exclude any other species, including bears, which seem to have no problem passing over the farm fence topped with several strands of wire. The results of excluding the deer are seen in the many tree seedlings that survive to become adults, and in the paucity of invasive plants, which are found outside of the exclosure.

The field trip site is also the core station for the National Ecological Observatory Network (NEON) Mid-Atlantic domain. NEON observatories will collect data across the United States on the impacts of climate change, land-use change and invasive species, and the effects of those changes on natural resources and biodiversity. There are 20 domains that include all 50 states and Puerto Rico. NEON is a relatively new project of the U.S. National Science Foundation, with many other U.S. agencies and nongovernmental

(See Trees, page 7)

Ancient longleaf pine habitat being restored

In early June, a group of John Clayton Chapter members gathered in Sussex County for a tour of the Joseph Pines Preserve. Hundreds of years ago, a climax longleaf pine forest probably stood here. This unique and incredibly diverse ecosystem, once dominant in the southeastern United States, historically reached its northern limit here in southeast Virginia. But the most evident indication of a formerly grand ecosystem at the preserve are the remains



Pinus Palustris, longleaf pine

of an old longleaf stump that had been sacrificed to the business of lumber, tar, pitch, and turpentine production.

Today, through much effort by the scientists and volunteers of Meadowview Biological Research Station, minimal funding, and the healing hand of nature, the preserve is in the early stages of recovery. In its present state the front of the preserve is a 30-plus-year-old mixed loblolly pine/hardwood stand. Here the Meadowview team has conducted five understory, growing-season burns to restore a wetland pine savanna. At the back of the preserve 45 acres have been cleared, burned, chemically treated, and replanted with certified native Virginia longleaf pine. Scattered

throughout the preserve are a number of sphagnous seepage bogs with native pitcher plants.

Our walk was led by Phil Sheridan, president and director of the Meadowview Biological Research Station that owns the 100-acre preserve. As Phil explained to us, the longleaf pine ecosystem was evolutionarily dependent on lightning-caused fires. The high resin content of the fallen needles of *Pinus palustris*, and their tendency to decompose slowly are two of the conditions that allowed the frequent fires that encouraged the growth of the characteristic early-successional array of flora—hot enough to discourage growth of shade-creating hardwoods and understory shrubs, but not so intense as to kill the fire-resistant longleaf pines.

Hundreds of plant species prospered in the characteristic fire-robbed, nutrient-poor soils of established longleaf forests. Clues that Joseph Pines was once inhabited by such an ecosystem are some of the flora recently discovered there such as red milkweed (*Asclepias rubra*), Collins's sedge (*Carex collinsii*), Rafinesque's seedbox (*Ludwigia hirtella*), and the sandhill's fire lily (*Lilium pyrophilum*). Historically in damp depressions of the fire-cleared forest, one could also find the yellow pitcher plant (*Sarracenia flava*) and pink sundew (*Drosera capillaris*), two carnivorous plant species we saw at Joseph Pines.

Unfortunately, the pitcher plant and many other species have been eradicated from their native territory. Indeed only two wild populations of the endangered yellow pitcher plant still exist in Virginia, and



*John Clayton members explore the Joseph Pines Preserve while on a field trip.
(All photos by Phillip Merritt)*

these are not thriving. But here is the good news. Pitcher plants of rare populations are being propagated at the Meadowview facility both from seed and divisions and then are returned to the wild. We were thrilled to see the product of this unique work in several thriving pitcher plant bogs, the largest stands of their kind in Virginia!

Of course, successful establishment of the pitcher plant is only a part

(See Joseph Pines, page 7)



Sarracenia flava, yellow pitcher plant

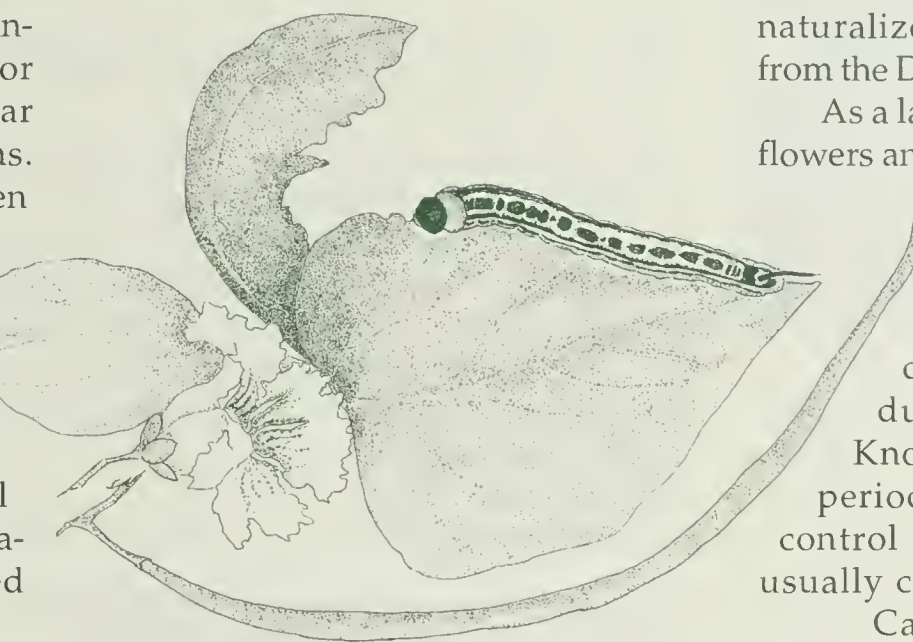
Catalpas, moths have unique relationship

Catalpa trees are part of my country landscape. Their preference for moist soil allows them to grow near roadside ditches or near streams. Sometimes a specimen tree is seen in an old farm's front yard. Their lacy white blossoms against a background of deep green leaves are arrestingly beautiful. The catalpa can also be seen in urban settings; a large tree filling a small quarter-acre lot. Winter views of mature trees reveal twisted gnarled trunks with irregularly placed branches that match mountain top trees shaped by harsh climate elements.

Last summer, a vehicle hit a young Catalpa tree nearby. Several days after the accident, the tree was defoliated. Only its cigar-like seed-pods were hanging from the branches. No leaf was on the tree and it was easy to jump to the conclusion that the tree was dying as a result of the accident. There had been evidence of some small fire related to the crash.

The tree remained upright and defoliated, but a few days later, new leaves began emerging. Within three weeks, that tree had a new leaf canopy of large green leaves. It was not the crash that caused its trauma. Catalpa worms (sphinx moth caterpillars, *Ceratomia catalpae*) were defoliating the tree at the time of the crash. They didn't attack the seed-pods, which are sometimes called Indian beans or Indian cigars, that were hanging from the branches like giant green beans. The tree completed its normal life cycle that year and the next year the defoliation cycle began again. Leaves, blooms, pods, defoliation, and re-leafing.

Controlling the caterpillars of the sphinx moth is not popular. The reason lies in the following question-and-answer. What native southern tree species is associated with largemouth bass fishing? Answer: Both southern catalpa (*Catalpa bignonioides*) and northern catalpa



Catalpa leaf, blossom, and seed pod, as well as a sphinx moth caterpillar (Illustration by Nicky Staunton)

(*Catalpa speciosa*)! An on-going catalpa industry exists selling catalpa worms that produce two broods per year. Fishermen consider these larvae a treasured bait. After reading how the caterpillars are used, a fly lure mimicking the worm might be preferred by those with a squeamish stomach.

A healthy market on eBay for both fresh and frozen caterpillars hovers at about \$40 for six dozen. Actually they are alive when removed from the packing and thawed. Katawba Gold is one company offering the bait. Largemouth bass reportedly have a voracious appetite for the three-inch black and pale yellow caterpillar with the characteristic long black spike tail or horn.

The catalpa tree creates many emotions for those who enjoy its blooms, ache with its defoliation and then rejoice when it leafs out again as a renewed tree until winter takes its leaves once again. Because not all catalpa trees are selected by the sphinx moth, some never lose all their leaves to the caterpillars. Not everyone is aware that the catalpa tree leaves are the sole host for the catalpa sphinx moth, but fishermen know!

The words catawba and kawtawba are informal names for the catalpa. No matter the spelling, neither tree species is native to Virginia. In the Old Dominion, the trees have

naturalized after being introduced from the Deep South and the Midwest.

As a landscape tree enjoyed for its flowers and interesting architecture, it might be better for it not to be a center of landscape focus if the sphinx moth larvae strike, leaving the tree defoliated even for the short duration of a week or two. Knowing that the defoliation period is brief, using chemical control for the caterpillars is not usually considered.

Catalpa trees have had only slight economic importance beyond the landscape nursery business. The wood has strength enough to have been used for fence posts, but generally is not considered of key economic value. Catalpa trees are in the Bignoniaceae family with trumpet vine (*Campis radicans*) and cross-vine (*Bignonia capreolata*). The invasive non-native princess tree (*Paulownia tomentosa*) was once classified in the Bignoniaceae family before being moved to Paulowniaceae, and, more recently, into Scrophularaceae according to the USDA website. The new *Virginia Flora*, however, will keep it in Paulowniaceae.

Two venerable and beautiful old catalpa trees survived the Civil War in Chatham, Virginia, near Fredericksburg. Their photographs can be seen and their story read in the *Remarkable Trees of Virginia* (Nancy Ross Hugo and Jeff Kirwan, with photographs by Robert Llewellyn). The trees were part of the antebellum landscape of the home that served as a hospital there on the heights. The young catalpa trunks witnessed the carnage of war. In 1978, the trees were estimated to be 160 to 170 years old. The astounding beauty of their knotty gnarled and hollow trunks remains and they still support beautiful blossoms. Hopefully, the sphinx moth keeps its distance from these inspirational and remarkable catalpa trees.

Nicky Staunton, VNPS vice-president



Goats put biological brakes on invasive plant species

We have all seen the choking destruction of invasive alien plant species: autumn olive, *Ailanthus*, Japanese honeysuckle, Asian bittersweet, kudzu, Bradford pear, and multiflora rose can take over a tract of land and wipe out native habitats within a few years. Often the only recourse for reclaiming an area is bushhogging or applying heavy applications of herbicide.

But now there is a faster, easier, more organic way to rid an area of invasives. Enter goats—in this case South African Boer Bok goats. These large goats, raised for meat, actually prefer eating with their heads up, foraging and browsing off of shrubs rather than putting their heads down and grazing. In the Shenandoah Valley, Linda and Clay Trainum of Autumn Olive Farms are participating in a pilot land-reclamation project sponsored by the Shenandoah Resource Conservation and Development Council in partnership with the Headwaters Soil and Water Conservation District. The purpose is to restore ecological balance within a habitat.

The Frontier Culture Museum in Staunton offered up the perfect laboratory for the project because it had several fields badly overgrown with Bradford pear seedlings from a nearby memorial avenue of the trees as well as autumn olives and multiflora roses. The Trainums devised a plan to rotate 36 does and a buck through several fields. The animals were fenced in behind a

flexible electrified mesh fence and protected by a Great Pyrenees guardian dog. Within days the animals had turned the once-impenetrable field into a stripped-out war zone while gently fertilizing the field with their droppings. And, should any of the invasive seeds happen to enter the goats' digestive tracts, the odds of germinating after exiting are very slim. Further, unlike cattle

everyone. It turns out that some of the more nutritious forages that produce some of the best meat are those invasives that seem to thrive even during droughts, giving these ruminants food while other livestock owners bring out the hay. The result is a highly nutritious, natural meat product that is low in fat and cholesterol. And, apparently, it is delicious as well—the meat is highly sought after by local restaurants that specialize in fresh, local food products.

In addition to their project at the Frontier Museum, 44 other Trainum goats are hard at work south of Staunton trying to eradicate an impenetrable field of autumn olive shrubs. We are all rooting for them! If you would like to follow the culinary adventures

of the Trainum's goats, visit www.autumnolivefarms.blogspot.com.

Nancy Sorrells
VNPS Bulletin Editor



A herd of goats teams up on an autumn olive. (Photos by Nancy Sorrells)

in a field, goats don't like to get their feet wet, so if there is a stream within an area being cleared, they will not degrade the stream banks by stepping down into the water. They will never stand in the stream and defecate.

The goats, who can strip an acre in a few days, will be rotated from field to field every few weeks. Plants such as autumn olive will attempt to put out new growth two or three times but eventually give up and die after being munched on time and again. At that point, when the invasives are gone, the field is ready to be prepared and replanted with native species.

The result is a win-win for



• Joseph Pines

(Continued from 4)

of Meadowview's goals. It is also dedicated to restoration of an integrated longleaf pine-pitcher plant habitat for 18 rare plant and three rare animal taxa. The backbone of the restoration effort is the establishment of native Virginia longleaf pines. The germplasm for the trees planted at Joseph Pines, unlike those of other restoration sites, was gathered from native Virginia stock. In an effort to capture the local genome, the scientists and volunteers at the preserve took on the arduous process of gathering cones still hanging from some of the 4,432 native trees in the state and propagating those seeds. At the age of 1 year, the seedlings were planted, and today, 5,000 longleaf pines at the preserve are 2 to 9 years old.

Another key to the sustainability of the longleaf-pitcher plant community is understanding surface-water and ground-water flows at the preserve. Research projects are being conducted by Old Dominion University students and volunteers to determine how water reaches the bogs, to understand the make-up of the soils, and to learn the type and age of any seeds found in soil plugs. Finding pitcher plant seeds, or better yet, viable pitcher plant seeds, would be exciting news indeed!

The work accomplished by the Meadowview team members is unprecedented in the state and a testament to their vision and the challenge still before them. They plan to expand the preserve to 234 acres by purchasing two adjoining properties, which will allow almost complete control of the local bog watershed. The original purchase of Joseph Pines (100 acres at \$100,000) was accomplished entirely from small donations by members. Continued generous donations are necessary to make this conservation work possible. Donations are tax deductible because Meadowview is a 501(c)(3) non-profit organization. Make sure to check out the John Clayton website (www.claytonvnps.org) and follow the link to "Photo Gallery" and then to Phillip Merritt's photographs to see more of Joseph Pines. Also, learn more about the Joseph Pines project and how you can help at www.pitcherplant.org.

Terri Cuthriell, John Clayton Chapter

• Trees

(Continued from page 3)

organizations cooperating. Its purpose is to study continental-scale questions about our environment and seems to be focused on climate change and biological invasions.

Our group also stopped by a recently sown warm season grass plot that had not sprouted for lack of moisture and so there was little to see. The SCBI grows food for our nation's zoo and plans to test native grasses for use as forage and at the same time have a wildlife-friendly pasture. We also visited the American chestnut orchard. There we were lucky to have along Cathy Mayes, who heads Virginia's chapter of the American Chestnut Foundation. She was able to tell us a lot about the work being done and about this orchard. Thanks to both Cathy and Norm for an interesting day!

Sally Anderson, VNPS President

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Sally Anderson, President
Nancy Sorrells, Editor

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• VNPS field trips

(Continued from page 2)

cypress swamp. After lunch, Ware, who is curator emerita of the William and Mary Herbarium, will lead the group along this trail where species such as Elliott's goldenrod, poison sumac, water ash, sweet leaf (horse sugar), red-berried cat-brier, frog-bit, and a variety of ferns occur. After exiting the swamp, we will follow slopes above the swamp to the banks of the Chickahominy River where farkleberry (!) (*Vaccinium arboreum*) is near its northern limit. From the riverbank we will view an extensive bald-cypress forest in autumn foliage. If time permits, we will also visit a deep sand habitat at the tip of an adjacent peninsula along the river that is inhabited by Margaret's oak and narrow-leaved bluecurls.

Those who sign up for Saturday's October 2 trip will meet Dot Field, Eastern Shore region steward, Division of Natural Heritage, for a field trip at Savage Neck Dunes Natural Area Preserve. This special natural area features sand dunes as high as 50 feet above the Chesapeake Bay, making them among the highest points on Virginia's Eastern Shore. The dunes and the mile-long bay shoreline help support diverse maritime plant communities, which in turn provide es-

sential habitat for migratory birds and the federally threatened northeastern beach tiger beetle. Dot introduced us to this preserve and others under her stewardship in her presentation at the 2010 annual VNPS Workshop.

Following this field trip, there will be an opportunity to visit Joe Scalf's Living Shoreline Project that is nearby. If you attended the workshop, you will recall that Joe introduced us to this demonstration project.

Bring a lunch or a snack and water and be prepared for weather and insects by wearing long pants, closed shoes, and a long-sleeved shirt or jacket. The parking at Savage Neck Dunes is limited, so consider carpooling. The preserve has only rudimentary toilet facilities (field toilet with tent cover), so it may be wise to

stop at the Chesapeake Bay Bridge Tunnel Rest Area or at the McDonalds or Hardees along Rt. 13 before arriving at the preserve. To learn more about Savage Neck, visit http://www.dcr.virginia.gov/natural_heritage/documents/pgsavage.pdf.

Invasive plant workshop

"Good Green, Bad Green: Invasive Plant Control for Habitat Restoration," a Mid-Atlantic focused conference sponsored by a consortium of conservation organizations including VNPS, will be held September 16-17 in Front Royal. Session topics include climate change and invasives, species identification, vegetation management, habitat triage, herbicide use, and habitat restoration. For more information, visit <http://www.forestryforthebay.org/ggbg/> or call 540-564-3080.

• Going to press

(Continued from page 1)

"The *Flora* will be vital for managing Virginia's natural resources and fundamentally important to all levels of education in Virginia," Lipscomb said. "But it will also provide trustworthy information that will meet the needs of the commercial and nonprofit sectors and local, state, and federal governments." It is expected that the *Flora of Virginia* will also be in demand in neighboring states, which share many taxa with Virginia but lack a current flora.

For more information about BRIT, please visit brit.org. And to learn more about the Flora of Virginia Project, please visit floraofvirginia.org.

Bland Crowder, associate director, Flora of Virginia Project

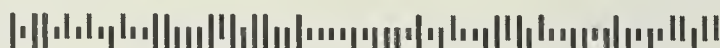
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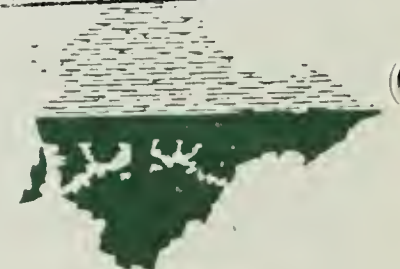


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Magnificent monarch migration endangered

The extraordinary migration of one of our loveliest and most recognizable butterflies, the large, brilliantly colored, orange and black monarch is seriously endangered on many fronts—and so too is its very presence fluttering among our summer gardens and wild places. Perhaps you noticed how few monarchs there were in our summer just past, and how late into the summer they arrived. They need our help, but first we must understand some details involved in the magnificent migration that are absolutely essential to their survival.

As fall nears with winter close on its heels, summer's final generation of



A beautiful male monarch readies for flight after drying his wings. The black spots on the hind wings indicate this is a male. (All photographs © Marie and Milan Majarov)

takes shape as, one by one, these featherweight fliers commence their perilous journey to central Mexico where their ancestors have long wintered. How they know where to go is still not fully understood. Millions of monarchs east of the Rockies, from as far north as southern Quebec,

make their way south or southwest on this trek.

Tough, determined, almost unstoppable, these half-gram insect pilots make incredible progress averaging just over 28 miles a day gliding with high-speed air currents and engaging in wing-powered flight at heights as great as 5,000 or more feet above the ground. Stopping only to refuel on fall flowers and roost through

(See Habitat, page 5)



A monarch butterfly emerges from its chrysalis.

monarchs pushes its way from tiny gilded chrysalides with an agenda vastly different from its short-lived, frolicking, summer kin. These monarchs enter a phase called diapause, in which they postpone mating and reproduction until spring of the coming year and embarking instead on a genetically programmed six- to eight-month mission to avoid the deadly cold of northern winter.

A breathtakingly grand migration

VNPS Field Trips Past & Future

FUTURE: Blue Ridge Parkway, North Carolina, Kansas...Page 3

PAST: New Kent, Savage Neck Dunes...Page 4



From the president

Be aware of ecological news around you

Fall is still my favorite time of year, and as much as I like writing to the membership, being outside in beautiful weather has been a priority after one of the hottest summers in years. I think our past year was still a special one from the native plant perspective. Besides lots of good programs and trips, having my own chapter host the Annual Meeting at Shenandoah National Park meant lots of mountain visits. I want to thank the chapter board for such hard work and dedication to making the meeting a fine one. I'll single out President Marjorie Prochaska and state and chapter treasurer Cathy Mayes for special thanks, but it was genuinely a group effort. All the help was appreciated.

Another thank-you is combined with a reminder: we are nearing the end of our fundraising year, so if you have not yet made a donation to this year's special fundraising campaign, I hope you'll consider doing that. This year our appeal was for the Flora of Virginia Project, and we set a goal of \$20,000. I think we can make it. As I write we are about three-quarters of the way toward achieving our goal. You can check Bland Crowder's progress report on the Flora in this issue.

As we gaze at autumn colors and admire spikes of tall grass and plumes of blue and white asters, planning for next year is already beginning. Look in this newsletter for announcements of our upcoming trips to the Southern Blue Ridge of Virginia, North Carolina's Green Swamp, and the Kansas tallgrass prairies, and watch for our brochure for the **Annual Workshop**, to be held in Richmond on March 5, 2011.

In a regular email newsletter from Virginia Conservation Network, in which VNPS has a membership, there is a list of articles from papers around the state on subjects that might interest VNPS members. You can sign up for VCN News on their website. Recent article subjects like how natural gas is obtained by a process known as fracking (hydraulic fracturing) in geologic areas of Marcellus shale. Some of our rarer habitats are shale barrens, and you can read about them on our Natural Heritage Program's website in the natural communities document. These areas should be watched with respect to developments in this industry. There is also some good news, such as solar panels that are going to be produced in the Dan River region, and an interesting op-ed piece about Virginia's energy—where it comes from and how much we need. It is interesting that most of the news centers on energy production. All of our energy use has an impact on our native plants and habitats, so it's worth reading up on and joining the debate.

Your President, Sally Anderson

Flora of Virginia getting finishing touches

The fine-tooth combs were broken out in early November at the first *Flora of Virginia* "authors' summit" in Chapel Hill. Co-authors Alan Weakley, Chris Ludwig, and Johnny

Townsend met at Alan's home for three long days of the nitty-gritty. He is curator of the herbarium and teaches at UNC; Chris is the executive director of the Flora of Virginia Project and is the chief biologist with the Virginia Natural Heritage Program within the Virginia Department of Conservation and Recreation. Johnny is staff botanist with Natural Heritage. I was there as copy editor and recording secretary.

Four tasks loomed:
•To review circumscriptions of a few families and genera

and selection of texts for use in developing descriptions.

•For certain taxa, to decide whether to maintain full species or varietal status or to combine varieties.

•To consider whether to include taxa that may or may not be established in Virginia or that may or may not have been collected here. This is the culmination of a review that has involved many botanists over the past year or so.

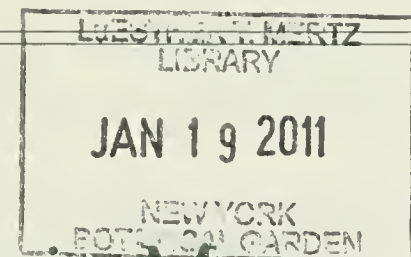
•To look once more at the illustrations, to see whether any adjustments are needed or other taxa should be illustrated.

Summits will be held in December, January, and February as well. As ominous as the agenda may sound, these meetings are just a necessary,

(See *Flora*, page 8).



Author! Author! Author! Johnny Townsend (left), Alan Weakley (middle), and Chris Ludwig engage in shop talk at the Flora authors' meeting recently. (Photo by Bland Crowder)



VNPS Field Trips 2011

Discover the Parkway's highs and lows in May

Butch and Betty Kelly will lead the VNPS trip on the Blue Ridge Parkway May 15-20. The trip will begin at the Peaks of Otter (Milepost 86) and proceed to the Virginia-North Carolina state line at the Blue Ridge Music Center (Milepost 213). The trip will include lodging at the Peaks of Otter Lodge and Hotel Floyd in Floyd, Virginia. There will be stops at three natural area preserves off the parkway. Poor Mountain in Roanoke County, Grassy Hill in Franklin County, and Buffalo Mountain in Floyd County are managed by the Virginia Natural Heritage Program.

The trip will include both cultural and natural history of the Blue Ridge Parkway. With an elevation range of 600 to 4,000 feet, there will be an array of botanical ecosystems to see, including

high mountain wetlands, prairie-glade communities, rugged mountain terrain, table mountain pine communities, oak-hickory forests, and mountain stream communities. The diversity of the Parkway from its pastoral settings to its magnificent vistas makes for a trip to remember. The flame azalea (three different shades) is usually in full bloom at that time of year. It is truly a photographer's paradise.

Plants to see should include flame azalea, Catawba rhododendron, Indian paintbrush, small whorled pogonia, pirate bush, pink lady-slipper, yellow lady-slipper, three-toothed cinquefoil, Appalachian fir club-moss, balsam ragwort, fetterbush, and bear oak.

The trip will include some activities at night including a brief slide

show on the Blue Ridge Parkway and music at several venues in Floyd. All but one of the hikes are rated easy to moderate. The one-mile hike to Buffalo Mountain is steep, but it is a very good trail with lots of switchbacks.

Both trip leaders are retired teachers with plenty of experience leading outdoor treks. Betty Kelly has led several trips for the Blue Ridge Wildflower Society. Butch Kelly worked as a National Park Service interpreter for 13 seasons on the Blue Ridge Parkway. The trip to southwest Virginia in 2010 was also led by the Kellys.

More detailed information and trip price will follow in the next newsletter. The trip is limited to 15 participants. For additional information contact Butch or Betty at butch2410@msn.com or 540-384-7429.

Visit carnivorous plants and tall grasses in June

This is a "save the dates" notice for members who would like to participate in the North Carolina Green Swamp Tour or the Kansas Prairie Tour in June of 2011.

The Green Swamp tour is tentatively scheduled for June 4-5. The Green Swamp is home to 14 native carnivorous plant species, among which is the rare Venus flytrap, *Dionaea muscipula*, which blooms in early June. The "swamp" is a mixture of pocosins (wet

areas) and savannahs (fairly dry areas) easily accessible by trails. The cost of the tour is yet to be determined.

The Kansas Prairie Tour is scheduled for June 11-18 and will encompass many of the favorite locations visited by VNPS in 2008 plus some exciting new ones. The tour is scheduled to take advantage of the peak season of abundant wildflowers native to the area. Effort will be made to keep the cost similar to that of the previous trip

(around \$500). Participants will be responsible for the cost of transportation to and from Kansas, plus breakfast and dinner each day.

Further information and sign-up procedures will be available in the next newsletter. Until then, questions can be directed to Linda Wilcox at w8n2cwildflowers@cox.net or 757-468-4346; or the VNPS office at vnpsofc@shentel.net or 540-837-1600.

VDGIF programs help volunteers make a difference outdoors

The Virginia Department of Game and Inland Fisheries (VDGIF) offers two outdoor volunteer programs that might be of interest to native plant society members. The Complementary Work Force (CWF) program was established in the mid-2000s to help conservation police officers, biologists, and other professional staff fulfill their mission to manage the Commonwealth's wildlife and inland fish resources, promote safety, and provide opportunities for all to enjoy wildlife, fish, boating, and related outdoor recreation.

The state matches program volunteers with the needs of VDGIF to create win-win situations for both volunteers and the department. The benefit accruing to the department includes added work force, increased focus on the law enforcement mission, an enhanced citizen support base, and greater outreach and educational opportunities provided to the public. The volunteer benefits include learning more about the management of wildlife, an intrinsic value of helping the state with conservation efforts, working with individuals with

similar interests, and exposure to new challenges and work experiences.

CWF volunteers perform a variety of services including assisting with prescribed burns, working at the conservation police academy, staffing restoration projects, performing permit inspections and issuance of appropriate paperwork, and assisting with trout stocking. CWF volunteer assignments may vary according to seasonal needs. For example, spring is a good time for clean up and trout stocking, and summer is a

(See *VDGIF Volunteers*, page 4)

VNPSers explore forestry center; fragile sand dune habitat

VNPS Education Chair Shirley Gay set up field trips to two more special places in Virginia this fall. The October 1 walk at New Kent Forestry Center near Williamsburg was led by Donna Ware, retired botanist from the College of William and Mary, assisted by Lisa Deaton, forest education specialist at the center. The 400-acre center is located on the Chickahominy River and is operated by the Virginia Department of Forestry.

The center was established to raise tree seedlings for replanting cut-over lands. Current research and plantings include several pine species. There is also an American chestnut orchard and a native grass field for quail habitat. In addition to the plantings, there are some native habitats that can be visited by trails and boardwalks. The woodland plant highlights included unusual plants such as farkleberry (*Vaccinium arboreum*), Margaret's or sand post oak (*Quercus margarettae*), a prickly pear (*Opuntia humifusa*) with narrow pads and few thorns, sweet leaf or horse sugar (*Symplocos tinctoria*), and plenty of ferns.

The boardwalk through the bald cypress swamp was beautiful and gave us the ability to cross an area with a foot of standing water. There we found the floating aquatic plant called frog's-bit (*Limnobium spongia*), coral greenbrier (*Smilax walteri*) with elongated red berries, the long wands of swamp loosestrife (*Decodon verticillatus*), maleberry (*Lyonia ligustrina*), marsh St. John's wort (*Triadenum (Hypericum) walteri*), swamp tupelo (*Nyssa biflora*), catchfly grass (*Leersia lenticularis*), three-way sedge (*Dulichium arundinaceum*), slender spike grass (*Chasmanthium laxum*), twisting screwstem (*Bartonia paniculata*) and what may have been a water ash (*Fraxinus caroliniana*). The bald cypress (*Taxodium distichum*), with its distinct knees, brought on a discussion as to the knees' purpose, because neither of the old ideas about support and oxygen have been proven true.

The following day, we were treated to a trip to the Eastern Shore of Virginia at Savage Neck Dunes Natural Area Preserve. We were led by Dot Field, Eastern Shore preserve steward, and Richard Ayers, stewardship technician. At this preserve, parking is adjacent to a native grassland restoration. The trail then passes a dense thicket of *Liquidambar styraciflua*, and enters a mature maritime forest that contains interdune ponds. These natural ponds fluctuate with the groundwater level. Along the shore of the pond was a sweet gum with a 115-inch circumference, ancestor of many trees in the thick woods where we entered. We also got a close-up look at a cricket frog, some wood ducks and a green heron.

The woods begin to thin as you enter the area of 50-foot dunes, a globally rare ecosystem formally known as maritime dune woodlands. Here, loblolly pines are growing out of the sand—they may be deeply buried and are much older than they look, because you are seeing only the tops. Dead trees are usually paired with a younger tree that bears fruit, evidence of the use of such snags for bird perches. The hot, white sand has sparse patches of *Hudsonia tomentosa*, ant lion trails and mushrooms! Crossing the maritime dune grasslands where the seaside goldenrod (*Solidago sempervirens*) was blooming, we came to the shore of the bay, where federally threatened northwestern beach tiger beetles darted away from the waves. We watched a bald eagle catch a fish and found the skull of a loggerhead sea turtle. Throughout the day various butterflies surrounded us, and in the evening we saw migrating monarchs heading for pine trees. We were a week ahead of the Eastern Shore of Virginia Birding and Wildlife Festival, but plenty of migrating birds were spotted during our stay.

The group appreciated our very knowledgeable leaders and we were fortunate that our trips fell on the two sunny days in a week of rain. Stay tuned—we'll find some new treasures next year.

Sally Anderson, VNPS President



Trip participants cross a boardwalk over water at the New Kent Forestry Center, above. A sand dune at Savage Neck Dunes Natural Heritage Area is seen at top. (Photos courtesy Sally Anderson)

•VDGIF volunteers

(Continued from page 3)

good time for mowing and maintenance. If any of these items interests you, but you do not have the necessary skill set, don't worry, the VDGIF offers training opportunities to its volunteers to ensure that the job is performed correctly and safely.

The state also created the Virginia Master Naturalist Program (MNP) in the mid-2000s. The MNP is jointly sponsored by the following five organizations: the Virginia Cooperative Extension; the Virginia Department of Conservation and Recreation; the Virginia Department of Forestry; the Virginia Museum of Natural History; and VDGIF. The MNP is made up of volunteers who provide education, outreach, and other services supporting the MNP mission to enhance the management of natural resources and natural areas in local communities. Volunteers can become Master Naturalists through a combination of training and volunteer service. Service opportunities range

(See Master Naturalist, page 6)

Habitat, native plants key to monarchs' success

(Continued from page 1)

the night, it takes 40 to 60 days to reach corridors along the coast and at Texas' Eagle Pass, through which massive clouds of butterflies sweep toward their destinations: 12 colonies within stands of oyamel fir trees at elevations of 11,000 feet or more on the not-too-cold, not-too-warm southwesterly slopes of Mexico's Transvolcanic Mountains.

Reaching their wintering destinations in late October through November, they take a well-deserved rest before mating and beginning their spring return. Flying back into Texas and nearby southern states, they lay eggs to ensure the continuation of their species and then they die. Offspring carry on the journey northward, repopulating throughout the entire range where it can find milkweed to which it is adapted.

To put their 2,000-plus mile feat in perspective, Toronto zoologist, David Gibo estimates that an equivalent distance for a six-foot person would be "11 times around the world." Now that is a spectacular journey! Especially considering the myriad environmental hazards, predators, manmade challenges, and the intricacies of nature these butterflies face!

Dr. Lincoln P. Brower, the foremost monarch scientist, Sweet Briar College research professor, University of Florida Distinguished Service Professor Emeritus, and butterfly ambassador extraordinaire, is deeply troubled about the welfare and survival of this migratory marvel. Dr. Brower describes the monarch's journey as "one of the most extraordinary annual migrations on our planet," while noting that it is an "endangered phenomenon." He predicts that "if precious overwintering sites, summer habitat, and migratory routes are not sufficiently protected and preserved, the migration will be doomed."

Loss of critical habitat across the monarchs' North American summer range has been massive. Dr. Orley "Chip" Taylor, director of the University of Kansas-based educational outreach program, Monarch Watch,

states that development "consuming 6,000 acres a day" and the loss of "100 million acres of monarch habitat" due to the adoption of genetically modified corn and soybean crops are also significant threats.

In Mexico, illegal logging to the point of clear-cutting areas of precious oyamel fir trees has taken an enormous toll on the overwintering sites and is changing critical microclimates necessary for monarch survival. Thus the butterflies, their trees, and the land they occupy are increasingly exposed to the devastating effects of increasingly severe winter storms, as a result of global warming.

The 2009-10 migration brought extremely low numbers of monarchs to the overwintering grounds. Then came devastating winter storms, with 15 inches of rain over four days, hail and mudslides, which Dr. Brower (<http://www.learner.org/jnorth/tm/monarch/Brower031810.html>) feels further lowered this already depleted wintering population as much as 50 percent, to an all-time low. As of this writing, the jury is still out on the 2010-11 season. Midwest monarch numbers look reasonable; but eastern conditions and numbers were less than favorable. Oh yes, monarchs certainly do need our help!

"Habitat, habitat, habitat," says Dr. Taylor who has launched the "Bring Back the Monarchs" campaign at Monarch Watch (<http://monarchwatch.org/bring-back-the-monarchs/>). Additionally Drs. Brower and Taylor, along with governmental agencies, organizations, and individuals across the U.S., Canada, and Mexico, are working to craft long-range plans for monarch conservation, habitat monitoring, research, edu-

cation and sustainable development at www.monarchbutterflyfund.org.

VNPS knows the best path to restoration of monarch summer habitat:

(See *Monarchs*, page 8)

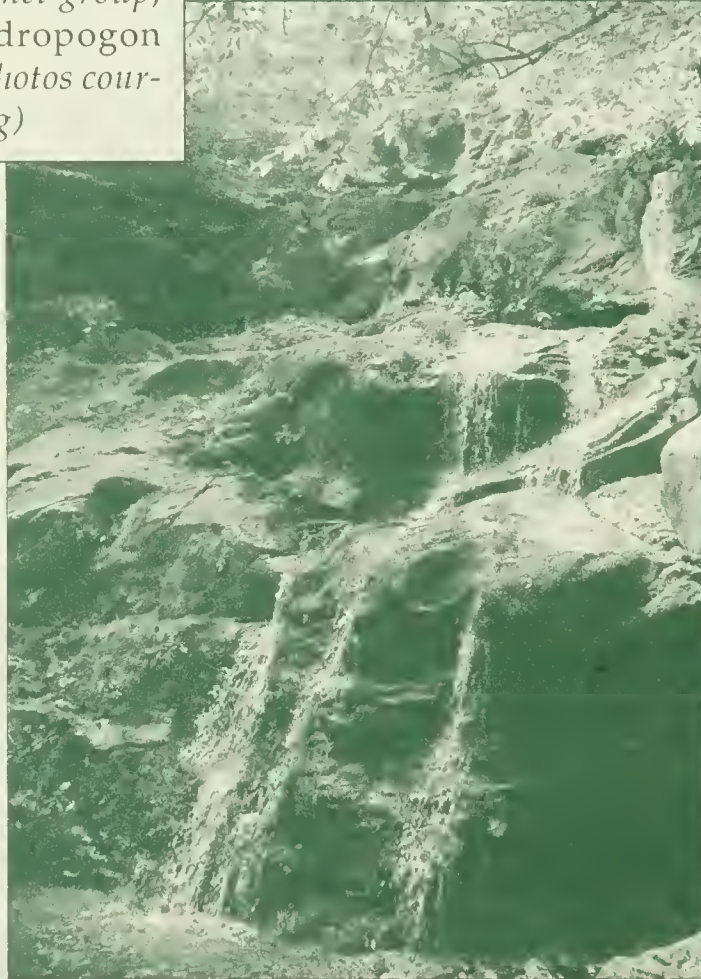


A salad bar of monarch favorites: Joe-pye weed (top), *Eupatorium* spp., is a popular nectaring plant for migrating monarchs. New York ironweed (middle), *Vernonia* spp., is another fall flowering plant favored by migrating monarchs. Swamp milkweed, *Asclepias incarnata*, is a perennial milkweed that has slender leaves and small pink flowers. It grows in clumps in swamps and wet thickets but also survives in much drier habitats and can be cultivated in gardens. (Photographs © Marie and Milan Majarov)

*"Our Mountain Roots in
Shenandoah National Park"*
VNPS Annual Meeting
September 10-12, 2010



Jack Price, above, explains basswood (*Tilia americana*); lichens grow on the Jewel Hollow Overlook retaining wall; fragile fern (*Cystopteris fragilis*), top right, grows in a wall crack; a fungus called sulfur shelf or chicken of the woods; Kristin Zimet offers trail mix to her group; Dark Hollow Falls; big bluestem (*Andropogon gerardii*) at Jewel Hollow Overlook. (Photos courtesy of Richard and Sybille Stromberg)



• Master Naturalist

(Continued from page 4)

from education-related outreach to citizen-science projects, and include data collection and more labor-intensive stewardship efforts.

In contrast to the CWF and its five-region structure, the MNP program is organized into 25 chapters with two more chapters to be formed soon. Each chapter is supported by a chapter adviser, who is a local representative of

one of the state agency sponsors, and a program adviser, who oversees the day-to-day operation of the program. The program is also supported by an executive committee that oversees the operations of the program and a statewide steering committee that manages chapter activities and develops program policy and plans. Chapters are encouraged to forge partnerships with other chapters and organizations.

These are a few highlights on two of the many volunteer opportunities to allow you to satisfy your outdoor, conservation passion. More information on these and other VDGIF volunteer programs is provided on the VDGIF website at dgif.virginia.gov/volunteer. Additional information on the MNP can be found at virginiamasternaturalist.org.

John Gibbons, CFW member

Geocachers help Idaho with war on invasive plants

Facing hard-to-find patches of quick-spreading invaders, Ada County (Idaho) is seeking the help of some high-tech allies.

It's basically a game of hide-and-seek, but the worldwide phenomenon known as geocaching is about to join a very serious effort in Ada County.

The county's Weed, Pest and Mosquito Abatement Department is recruiting tech-savvy and geographically

knowledgeable geocachers to help pinpoint new and expanding infestations of noxious weeds before they get a chance to do real damage.

These are folks who use handheld Global Positioning System units and detailed maps to find caches others have hidden. Many are in hard-to-locate rural areas, but tiny caches are often placed right in the heart of urban and residential areas.

"It is a different group in the community and we hope they are interested," said Jacob Mundt, the weed department's operations manager.

About 20 of the 64 noxious weeds in Idaho may be found in Ada County.

Though invasive species have long been a problem, officials are currently focusing on early detection rapid response—EDRR—weeds, which are either new weeds or weeds that cover a lot of area, Mundt said.

Two EDRR weeds in Ada County that are hazardous for humans and animals are yellow starthistle and leafy spurge, which can cause blindness if the sap gets in a person's eyes.

In the past, Ada County Weed Control has posted informational brochures and fliers for the community but this time decided to take a technological approach.

Four geocache containers have been placed at various natural locations and contain informational facts, weed control methods, and pictures of noxious weeds. More geocaches will be placed in the Foothills at a later date.

"We selectively put the geocaches by the Greenbelt because it's a nice, (See *Geocaching*, page 8)

Invasives workshop draws enthusiastic crowd

A great mix of people convened at the 4-H Center and the Smithsonian Conservation Biology Institute (SCBI) in Front Royal on September 16 and 17 for a workshop on invasive plant control and habitat restoration. The meeting was a smashing success, both in its organization and its content. The conference sold out with 160 participants, including state agency staff, private landowners, professional resource managers, horticulturalists, related businesses, and those of us from volunteer organizations such as VNPS, Master Naturalists, and

Master Gardeners. The two principal organizers were Matt Yancey of the Virginia Department of Forestry and Extension agent Adam Downing. Bill McShea of SCBI and a committee including Sally Anderson and Ruth Douglas also participated in planning. A number of sponsors were recruited, including VNPS.

There were speakers scheduled both mornings while both afternoons were devoted to field trips. On Thursday evening U.S. Department of Agriculture researcher Dr. Lew Ziska, gave a fascinating program on CO₂, invasive plants, and climate change.

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A monarch caterpillar enjoys purple milkweed, *Asclepias purpurascens*. Milkweed species are vital host plants for monarchs.

• Monarchs

(Continued from page 5)

encouraging native plants! Native host plants, milkweed, *Asclepias* species such as *A. syriaca*, *A. incarnata*, *A. tuberosa*, and *A. purpurascens*, as well as fall nectaring plants for migration refueling including goldenrods (*Solidago*), Joe-pye weed (*Eupatorium*), ironweed (*Vernonia*), asters (*Symphiotrichum*), and bur-mari-golds (*Bidens laevis*), are all vital in

bringing back monarchs. VNPS, you are critically needed to help in saving our magnificent, endangered monarch friends!

Marie Majarov and her husband Milan are members of the Virginia Outdoor Writers Association and VNPS. They maintain a thriving monarch waystation at their Winchester home. Marie can be reached for further monarch information and resources through www.majarov.com.

• Flora

(Continued from page 2)

detail-oriented step and are not expected to generate much unforeseen work.

So if you think we're getting closer to having a *Flora*, you're right. I am looking forward to spending most of 2011 with the manuscript, because I will be copyediting it. It will land on my desk around the first of the year. In fact, I have already begun copyediting the Gymnosperms, allowing me to encounter a lot of special cases that I can expect to see along the way. As I copyedit, I will be working on the glossary and also

styling the type in Adobe InDesign, a layout program. This is the logical stage at which to style type, and so when I hand off to BRIT Press, the publisher, in early 2012, they'll be able to move directly to page layout.

On the docket for the future: the Flora Project and the Library of Virginia are pursuing the possibility of an exhibition in 2014 about floras, plants, and botany in our state. Stay tuned!

Bland Crowder, Associate Director
Flora of Virginia Project

• Geocaching

(Continued from page 7)

beautiful area that people like to go to, but we want those people to be aware that in beautiful settings, weeds can grow."

Patrick Bradbury, a local geocacher, said he has never looked for noxious weeds but would be more aware after reading the information in a geocache.

"I think that a lot of people would be willing to help with weed identification because most geocachers are environmentally oriented," he said.

Article by Kayla Herrman originally ran in the June 14, 2010, issue of Idaho Statesman. © 2010 Idaho Statesman

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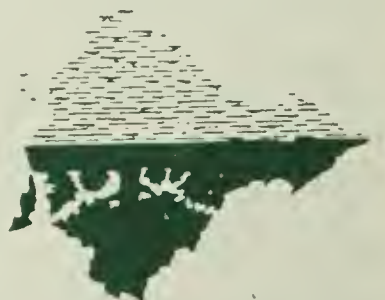
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